PIT AND QUARRY

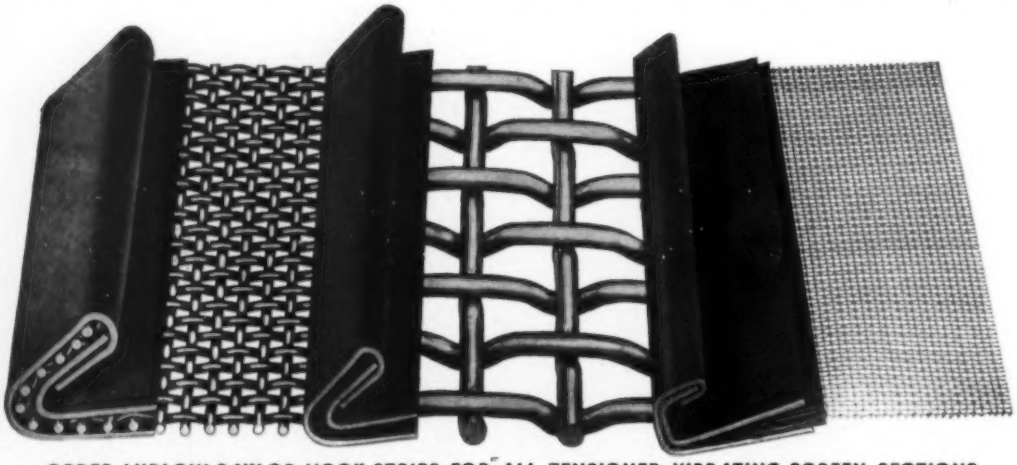
STA-SMOOTH

ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER - HARD - - - SUPER - TOUGH - - - SUPER - STRONG

SUPER - LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

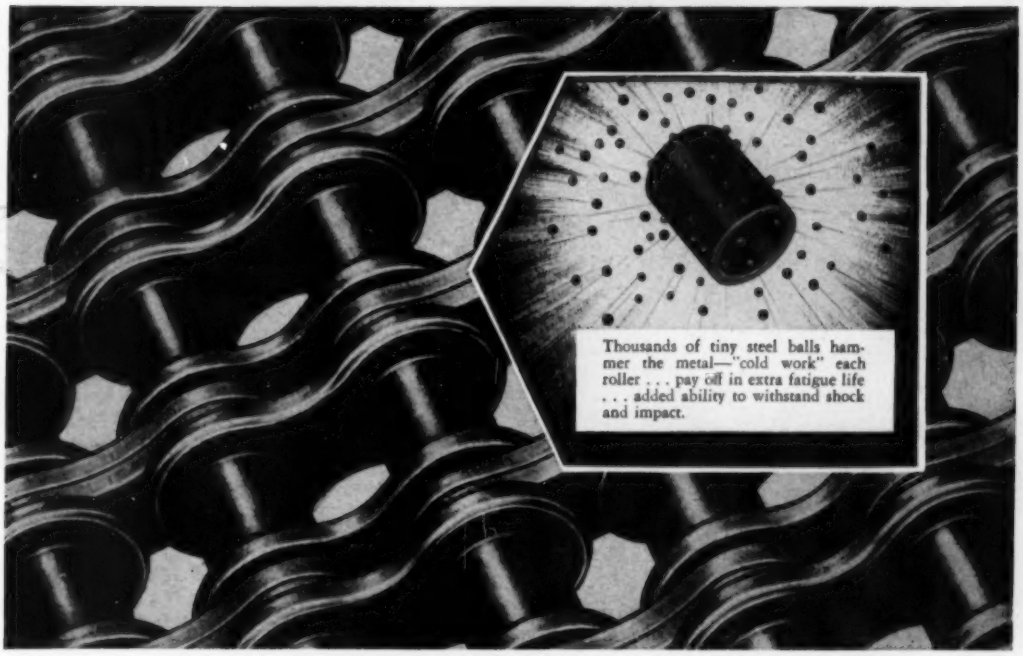


ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. **ST. LOUIS 10, MO.**

Get the roller chain that gives you SHOT-PEENED rollers...


Thousands of tiny steel balls hammer the metal—"cold work" each roller . . . pay off in extra fatigue life . . . added ability to withstand shock and impact.

look for the darkened rollers!

THERE are sound reasons for the universal acceptance of Link-Belt Precision Steel Roller Chain. Two of them—shot-peened rollers and Lock-type Bushings—are shown here.

Others include Link-Belt's rigid material selection and controlled heat treating—your assurance of absolute uniformity with no weak members.

Whether it's for drive or conveyor service, you can get the best in roller chain from the complete Link-Belt line—single and multiple widths, in 3/8" through 3", and double pitch, 1" through 3". Next time you need roller chain, call the Link-Belt office near you.

LINK-BELT

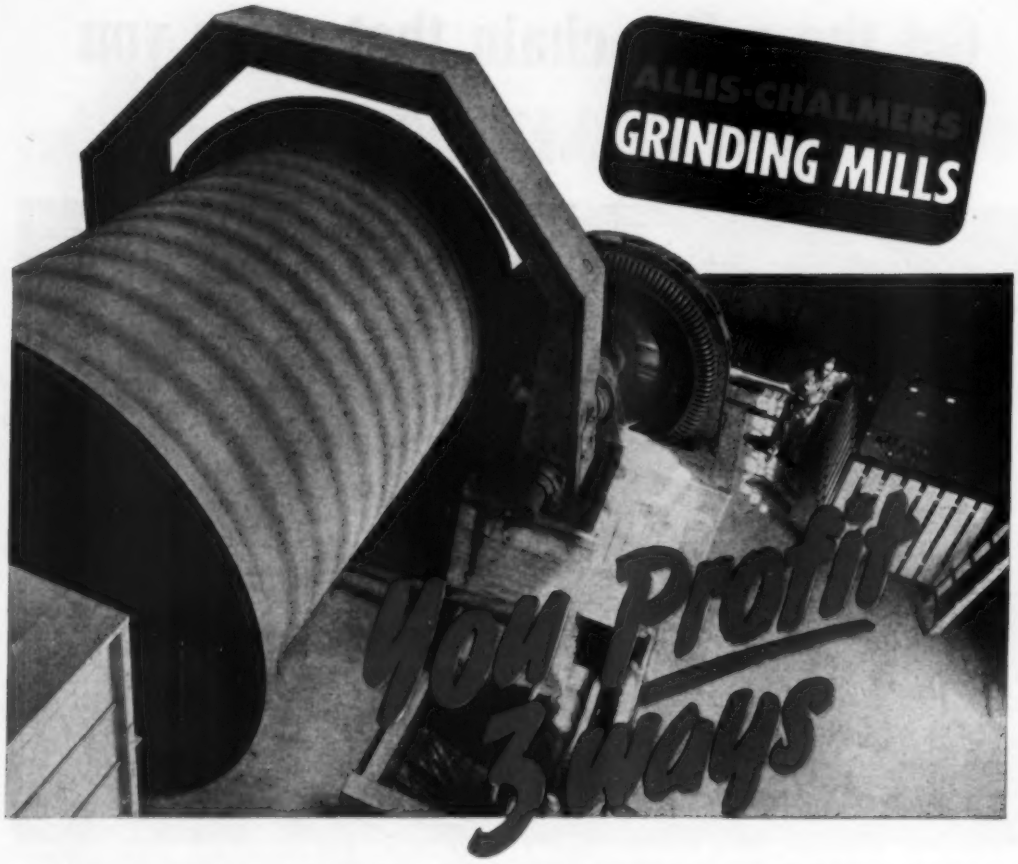
PRECISION STEEL ROLLER CHAIN

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in Principal Cities. 12,897

Lock-type Bushings increase ability to withstand shock loads

A special manufacturing process securely locks the inside sidebars on the bushing, preventing lateral movement of the sidebars and eliminating a common cause of stiff chains. This Link-Belt development is applied on roller chains through 1" pitch and double pitch roller chains through 2" pitch.

PIT AND QUARRY, February, 1953, Vol. 45, No. 8. Published monthly by the Complete Service Publishing Company, 431 S. Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1982, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.



...WHEN YOU SPECIFY ALLIS-CHALMERS GRINDING MILLS

1 **YOU CAN BE SURE** of getting a grinding mill specifically suited to your requirements. A wide range and multiple combinations of types and sizes assures this . . . assures top, economical performance year in, year out.

2 **YOU GAIN** the seasoned benefits and *unequalled* experience accumulated through the successful installation of more than 4200 Allis-Chalmers mills over a period of 70 years.

3 **YOU ARE DOUBLY ASSURED** of completely balanced operation, with its resulting economies, when you equip your mills with motors, drives and controls — all manufactured in A-C shops.

NEW 44-page grinding mill bulletin 07B6718A is chuck full of valuable tables and grinding mill information. Get it from A-C representative in your area or write Allis-Chalmers, Milwaukee 1, Wis. A-3706

Pulverator is an Allis-Chalmers trademark.

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Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Pulverator

Gyratory Crushers

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Grinding Mills

Vibrating Screens

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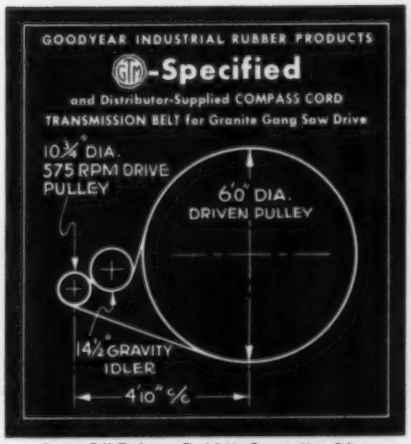
DOUBLED BELT LIFE

by consulting Goodyear Distributor

OPERATOR of this granite gang saw called a Goodyear Distributor for help with his flat belt drive. The Distributor came, bringing along the G.T.M.—Goodyear Technical Man—to analyze the drive and make belt recommendations.

The G.T.M. studied the drive, made his engineering recommendations, specified the belts to handle the problem. Result: the COMPASS Flat Belts he recommended delivered two years' service—*double the best previous record*. The Distributor took over—now stocks the exact replacement belts the operator needs—can deliver them right out of stock at any time.

You can get service like this, too—specification of the *right* product and on-call delivery—simply by calling your nearest Goodyear Industrial Rubber Products Distributor. Look for him in the yellow pages of your Telephone Directory—handling Hose, Flat Belts, V-Belts, Packing, Tank Lining, Rubber-Covered Rolls—or write for an introduction to Goodyear, Mechanical Goods Division, Akron 16, Ohio.



Compass—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

HERE'S WHY IT PAYS TO ORDER FROM YOUR LOCAL GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR

Replacement orders filled when you need them from convenient, local stocks.

One order, *one* bill, *one* central responsibility for all your Mechanical Goods requirements.

You save on valuable stockroom space, because your local Distributor maintains a full stock of what he knows you need.

Double assurance of satisfaction because the Distributor and Goodyear stand behind the products he sells you.

GOODYEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

from the PYRAMID OF KHUFU . . .

to the MESABI RANGE . . .

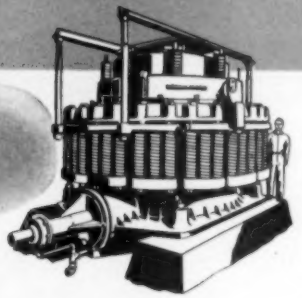
IRON HAS COME A LONG WAY

THE largest of the *Pyramids of Gizeh* is that of *Khufu*, built of limestone cut in the quarries of the Nile Cliffs and floated across the river to the site of the tomb.

It is claimed by some historians that the oldest iron to be discovered was in the form of a tool found in an air shaft of this great pyramid of Khufu, which was built about 2800 B.C. From Khufu to the modern marvel of the Mesabi Range, iron has come a long way . . . to become the metal of greatest service to man.

Since their introduction, *SYMONS* Cone Crushers, with their great capacity for more finely crushed ore at lower cost, have been a big factor in the production of iron ore . . . *and have achieved outstanding performance records in all of the great ore and industrial mineral operations the world over.*

NORDBERG MFG. CO., Milwaukee, Wisconsin



* *SYMONS* Cone Crushers . . . *the machines that revolutionized crushing practice* . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour.

SYMONS . . . A NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD

C352

"SYMONS" Primary Crushers

Grinding Mills

Mine Hoists

"SYMONS" Vibrating Bar Grizzlies and Screens

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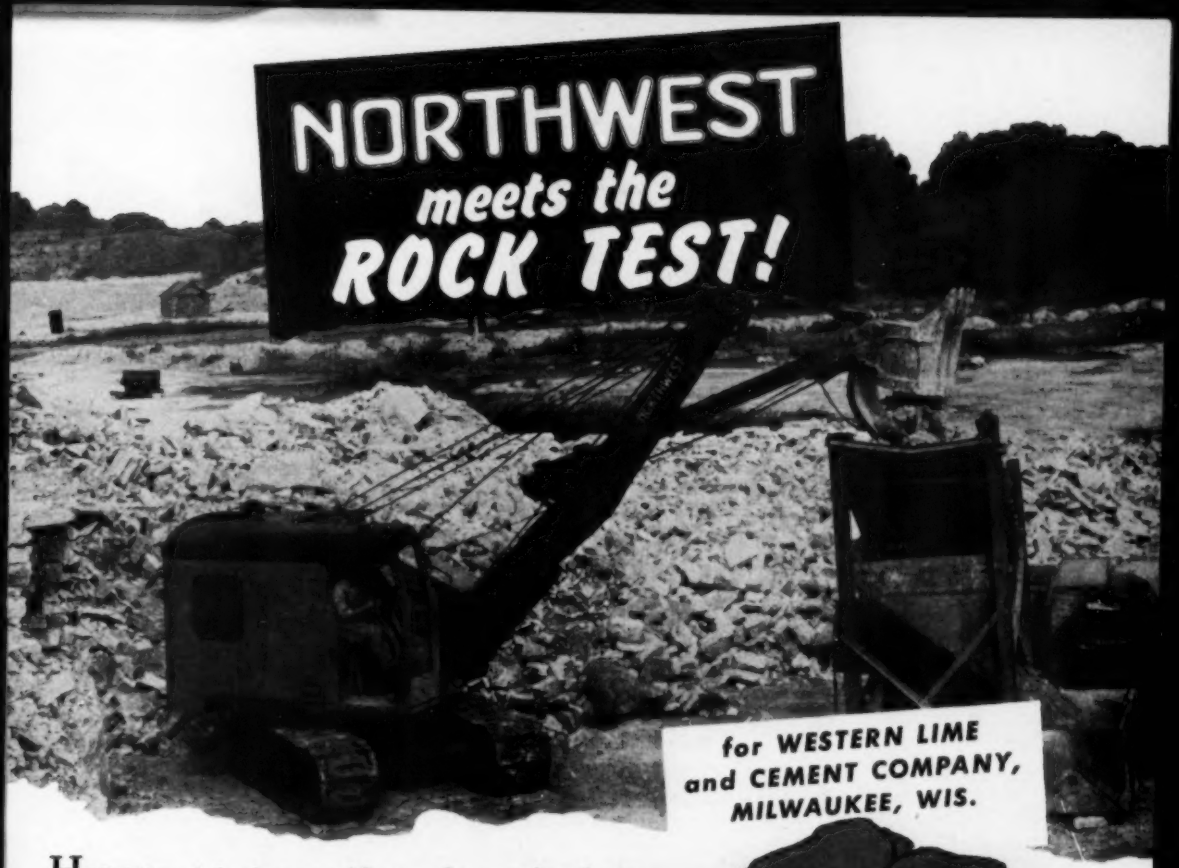


HERE'S a job that would test the mettle of any equipment. Greater crowding force, smoothness of dipper control, easier operation, accuracy of spotting, are just a few of the advantages that Northwest equipment brings you. They are advantages that show up in all hard rock work. Northwests are serving on some of the largest quarrying operations in the country. In many cases their speed is outproducing larger, slower equipment and their simplicity of design and dependable construction eliminates the constant irritation of minor adjustments and breakdowns that increase down time and reduce output.

The Northwest is a *real* Rock Shovel and if you have a *real* Rock Shovel you are equipped for any pit problem. Why not plan to have a Northwest? Talk it over with a Northwest Man.

ROCK is this Company's Business!

NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street, Chicago 3, Illinois

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem

Austin-Western
CRUSHING EQUIPMENT

is now being built at—

Lima, Ohio

New facilities in our vast Lima plant enable us to maintain steady, top-quality production of the following AUSTIN-WESTERN equipment.

- Portable crushing and screening plants
- Stationary crushing, screening and washing plants
- Jaw crushers from 10" x 16" to 32" x 40"
- Roll crushers—24" x 16" to 40" x 24"
- Conveyors • Screens • Feeders, bins and auxiliary equipment

BALDWIN-LIMA-HAMILTON

AUSTIN-WESTERN
Crushing, Screening, and Washing Equipment

Construction Equipment Division, Lima, Ohio

LIMA
Shovels • Cranes
Draglines • Pullshovels

Her fingertips imagine the taste

The lady doesn't trust her eyes alone.

The buyer of Multiwalls is in much the same position.

Aside from package design, it's hard to tell one manufacturer's bag from another's simply by looking at it or fingering it.

Put the bags out of sight and you may be able to see many differences.

Men who buy 85 per cent of all Multiwalls consider* these intangibles more important than any other factor when they choose their supplier.

Invariably, these are among the first questions they ask . . .

"Is this company big enough?"

"Do they have a fair allocation policy?"

"Are their prices competitive?"

"Do they respect delivery dates?"

In a nutshell—

"Are they good people to do business with?"

We can't tell you what the answers are when these Multiwall users consider Union. This we do know . . . and the inference is yours to make—

In these days of industrial pressure, when *dependability* is a fervent wish as well as a word, men to whom Multiwalls are important are placing an increasing share of their orders with Union.

More so every day . . .

IT'S UNION FOR MULTIWALLS

TRADE MARK UNION

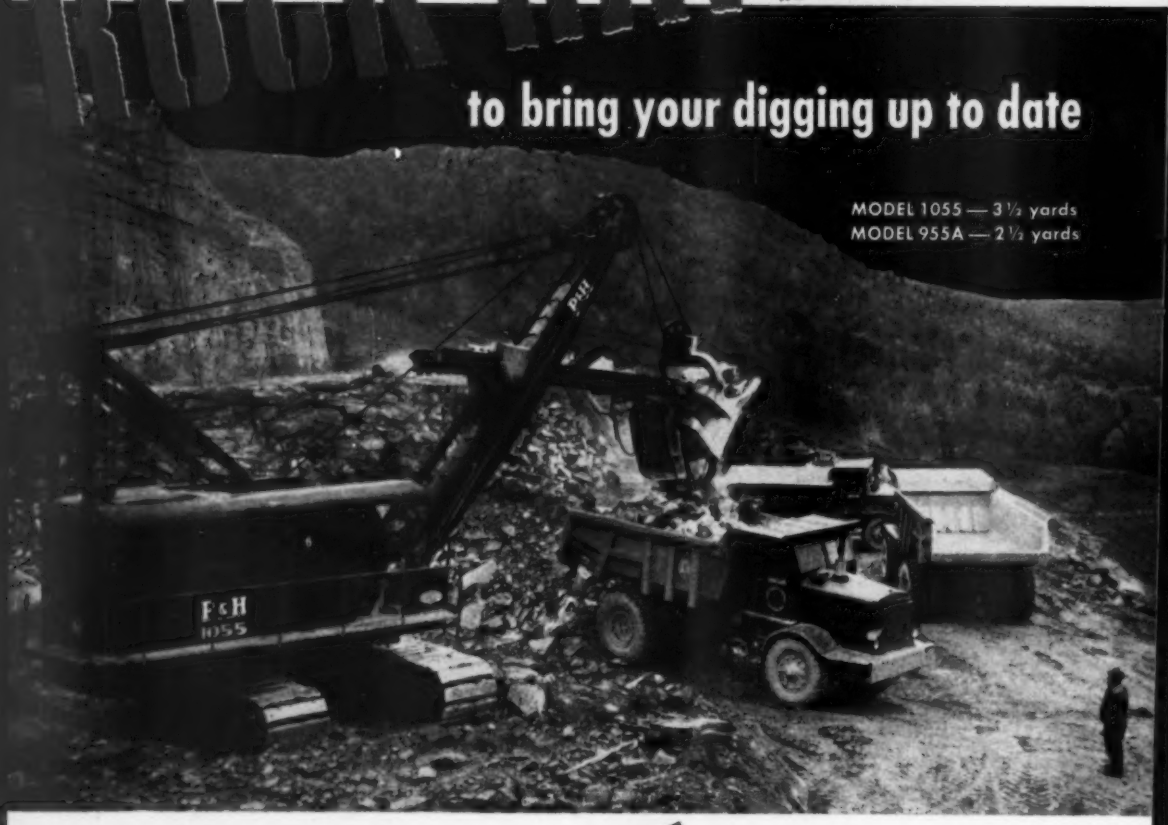
*August, 1951 research study.

UNION BAG & PAPER CORPORATION • NEW YORK: WOOLWORTH BUILDING • CHICAGO: DAILY NEWS BUILDING

ROCK RATED

to bring your digging up to date

MODEL 1055 — 3½ yards
MODEL 955A — 2½ yards



You have the jump on costs when your new P&H takes over the tough digging jobs. Why? Because there's no other machine to match its performance. You have the speed — a 15% to 25% faster digging cycle — for bigger production. You have the all-welded strength to take shock loads that would K.O. less rugged machines. You have the stability to exert more power at the tooth point. That gives you added capacity.

If you're ready to cut your costs, these P&H's are ready to help you.

P&H MAGNETORQUE*
ELECTRIC SWING

the greatest shovel improvement in 20 years. It's smoother, faster, more dependable. It eliminates the old swing frictions with their constant headaches and replacement costs. Magnetorque lasts the life of your machine. You should know the facts about it!

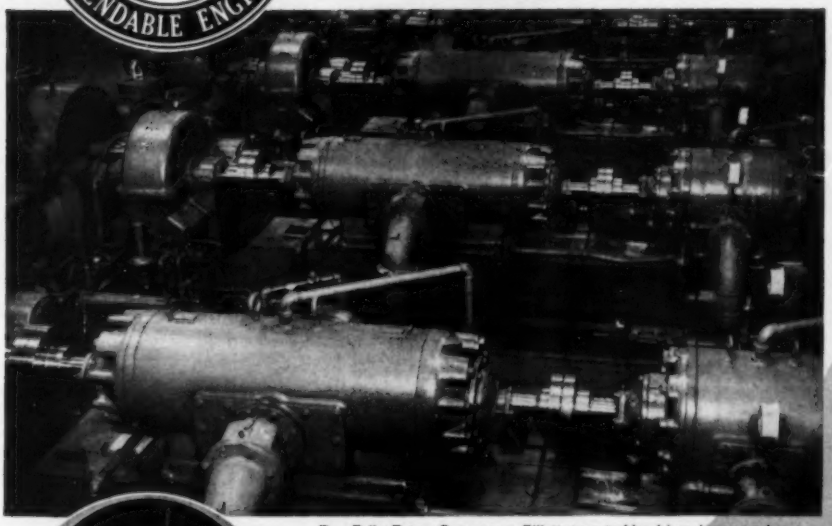
**T.M. of Harnischfeger Corporation for electro-magnetic type coupling.*

P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER CORPORATION
MILWAUKEE 46, WISCONSIN

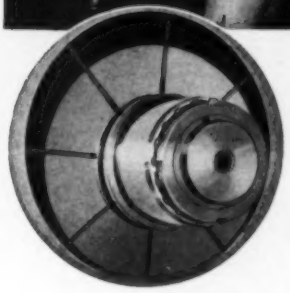
P&H Line

TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PRE-FABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

PRATT & WHITNEY AIRCRAFT



Four Fuller Rotary Compressors, Elliott steam-turbine driven, have a total capacity of 6760 c.f.m., at 110 p.s.i.



depends on FULLER AIRPOWER

Four Fuller Rotary Two-stage Compressors put Pratt & Whitney Aircraft's engine plant in East Hartford on a 100 p.s.i. air diet for such operations as shot peening, spray booths, air cleaning, and air-operated chucks.

Pratt & Whitney Aircraft has joined no *small* family of users; food and chemical plants, steel mills and cement mills, gas-gathering plants, refineries, automobile plants, foundries and machine shops, public utilities, and many others depend on Fuller for compressor equipment, wherever air is required.

Whether *your* air-plans call for single-stage, two-stage — single-stage duplex or two-stage duplex—you can be sure Fuller has the compressors which gives you a dependable source of pulsation-free air up to 3300 c.f.m., 125 p.s.i., with maintained capacity for the life of the machine.

Write for Bulletin C-6, Fuller Rotary Compressors.

FULLER COMPANY, Catasauqua, Pa.
Chicago 3—120 So. LaSalle St.
San Francisco 4—420 Chancery Bldg.

Fuller

PIONEERS OF HIGH-EFFICIENCY VANE-TYPE ROTARY COMPRESSORS

C-325
1034

for

STRENGTH

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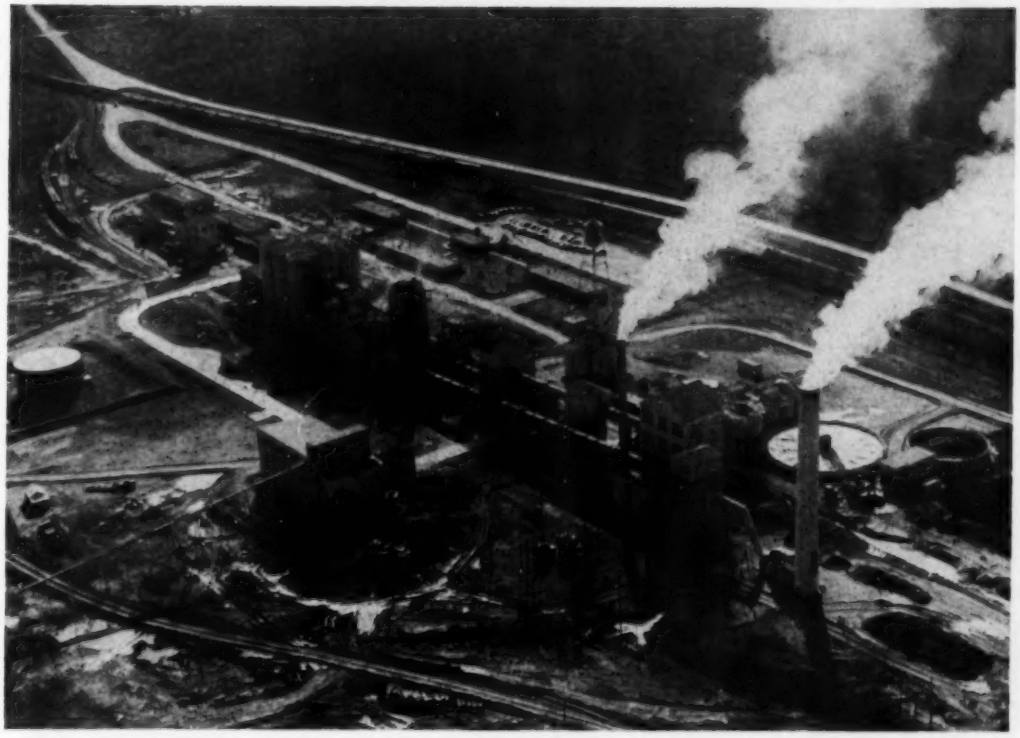
GIANT GROWS WITH THE SOUTH



Carolina Giant's 1,000,000 barrel addition at Harleyville, South Carolina required not only new construction, but extensive alteration and modernization.

While the backbone of this additional capacity is the new 11'-3" x 425' kiln, every department was affected in the construction program. New crushing and raw grinding facilities were provided for the entire plant. Existing finish grinding and slurry departments were enlarged and modernized. The complete primary substation was relocated.

Macdonald experience in the cement industry enabled them to design and construct this extension in record time . . . ***with negligible loss of production in the existing plant.***

For design and construction of your new plant or extensions,
contact us at any of our offices

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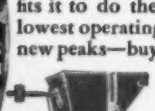
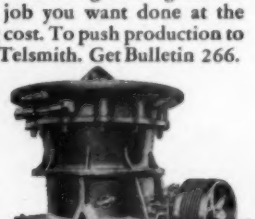
San Francisco, Cal.

TELSMITH GRAVEL PLANT and QUARRY *Equipment*

When you modernize, expand or build a new plant—Telsmith machinery is the right answer to your production problems. From crushers to bin gates, every unit is designed, engineered, and built "right" *by Telsmith.* And Telsmith selective engineering service fits it to do the job you want done at the lowest operating cost. To push production to new peaks—buy Telsmith. Get Bulletin 266.



SAND TANKS

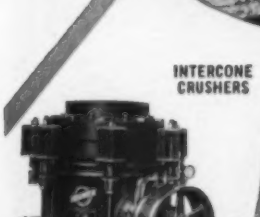


GYRATORY CRUSHERS

SAND DRAGS

SAND CLASSIFIERS

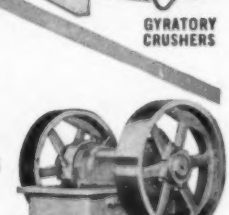
INTERCONE CRUSHERS



SUPER SCRUBBERS

CONVEYORS AND BUCKET ELEVATORS

JAW CRUSHERS



WASHING SCREENS

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APRON AND PLATE FEEDERS

DRY SCREENS

VIBRO-KING SCREENS

ROLL CRUSHERS

GYRASPHERE CRUSHERS

E-11

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Cable Address: Sengworks, Milwaukee

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Marens Eqpt. Co., 432 Main St., Rochester, Mich. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif.

Bish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Interstate Equipment Co., Statesville, N. C.

INSTALL VELVETOUCH MATCHED FACING SETS

Now you can stop clutch failures caused by constant overloading and driver abuse . . . with Velvetouch Matched Facing Sets. Because these Sets give you *FOUR* controlled friction surfaces instead of two—give you *DOUBLE* the controlled friction area you get with conventional plates.

In addition, Velvetouch Matched Facing Sets fully protect costly flywheels and pressure plates against damaging heat checks and warping. And old plates that have already been damaged, can be reclaimed and put back into service...better than ever!

Get the facts about Velvetouch Matched Facing Sets today. Complete details covering installation and operating advantages are available now. See your jobber, contact our nearest branch, or write us direct.

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users specify AMSCO DREDGE PUMPS

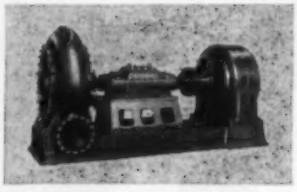
More **Amsco** Pumps have been placed in dredges for sand and gravel recovery, river and harbor dredging, shell reclamation, and more recently, ores such as titanium, than those of any other manufacturer. The reasons for this preference are clear:

Amsco Pumps, with working parts made of manganese steel, can withstand the terrific abrasion of sand and the sledge hammer blows of rock much longer than any others.

Amsco Pumps are designed from experience and engineered for your job.

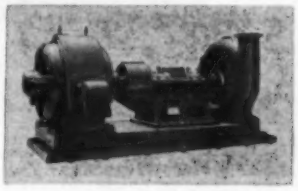
▶These six basic types of Amsco Dredge Pumps—actually there are 40 different models—give a general idea of the complete line. The basic differences are in rated capacity, weight and construction of bearings, and in proportionate shaft sizes. Such modifications are made for economy...There is no dollar-wasting excess weight on the Amsco Pump engineered for your job. Water end parts are also available in ABK metal subject to our engineers approval.

Amsco has a complete line of welding rods and electrodes to assure prolonged life and economical service of Amsco Dredge Pumps.

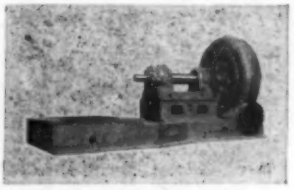


14-inch type XH—directly connected design; right hand bottom discharge. Can be fitted with "standard" or "counter-flow" water ends.

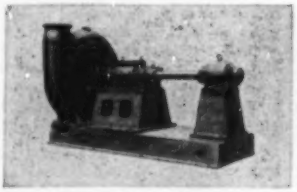
6-inch type SB-CF, form 24—antifriction bearing; stub base or belt driven; right hand bottom discharge.



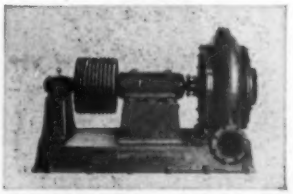
10-inch type M—left hand top discharge. Built in 6-, 8- and 10-inch sizes. Can be fitted with "standard" or "counter-flow" water ends.



20-inch type XHRB-CF—left hand bottom discharge; antifriction thrust and radial bearings.



12-inch type H-CF, form 40—right hand, top vertical discharge; belt driven. Combination two directional-type ball thrust bearing and sleeve-type radial bearings.



8-inch type C, form 30—belt driven; left hand bottom discharge; combination ball thrust and ring oiling sleeve main bearings. Available with "standard" or "counter-flow" water ends.

Brake Shoe **AMERICAN MANGANESE STEEL DIVISION**
396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

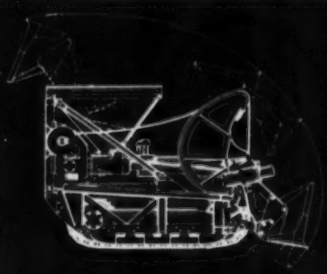
BIG LOAD
LITTLE EFFORT

Loads like this were considered jobs for big heavy equipment not long ago — but today loads this big or bigger can be handled easily with plenty of horsepower in reserve in the power unit.

The secret of the Eimco 104 is in better engineering, better steel castings and the rocker-arm principle described at right — where effort is applied to obtain a maximum in mechanical advantage.

Eimco 104's are heavy-duty loaders. They'll handle rock as easily as sand and gravel. Bucket sizes vary with material being loaded with an average job loading rate of between 200 and 300 yards per hour depending on job conditions.

Eimco 104's are being used for highway maintenance, heavy earthmoving, contracts, tunnels, steel mills, sand and gravel pits and many other jobs. Write for more information on Eimco loaders. Built in 6 different models for all loading jobs.



The rocker-arm principle is used on all Eimco Loaders. This principle, designed to give maximum force at the digging lip while the bucket is being worked up through the muck pile permits crowding forward at the same time so that the bucket will come up full every load.

EIMCO A431

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES — SALT LAKE CITY 10, UTAH, U. S. A.

BRANCH SALES AND SERVICE OFFICES:

NEW YORK 51 52 SOUTH STREET • CHICAGO 3319 SOUTH WALLACE STREET
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EL PASO, TEXAS, MILLS BUILDING • BERKELEY, CALIF. 637 CEDAR STREET
KELLOGG, IDAHO, 307 DIVISION ST. • LONDON W. 1, ENGLAND, 190 PICCADILLY

IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
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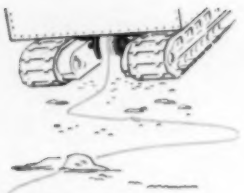
You can't beat an Eimco

proved in **our** mines

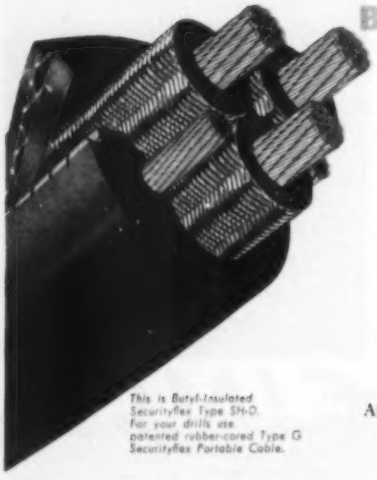
for better performance in **yours**



We—at Anaconda—are miners ourselves. We know shovel cable because we use lots of it. Safety and uninterrupted flow of power are important in any mining operation. In both respects we know Securityflex® Type SH-D has a good record.

for longer "failure-free" service on big shovels, insist on

Butyl-Insulated Securityflex above 2kv



This is Butyl-Insulated Securityflex Type SH-D. For your drills use patented rubber-cored Type G Securityflex Portable Cable.

ANACONDA Securityflex Cable is safer, less liable to "blow-out," easier to work with. Here's why:

BUTYL INSULATION. This accounts for improved resistance to moisture, ozone, heat (up to 80C).

NEOPRENE JACKET. Here is real flexibility and great strength engineered for this specific tough use. Handles well, has high impact resistance and lasts longer in all weather.

RUBBER-CORED GROUND WIRES. This safety-first feature prevents kinking, gives greater shield contact, and cushions the wires.

COPPER-COTTON SHIELD. Special new-type shield makes splicing easier, faster without damage to insulation. Eliminates chafing failures.

Ask your Anaconda Sales Office or Distributor to show you this and other ANACONDA portable mining cables. Learn how continuous improvements have made these famous cables better . . . for safety . . . and for increased production at less cost in your mine. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

*Trademark 52200

the right cable for the job ANACONDA® **wire and cable**

This photo shows some of the equipment employed in quarrying and processing operations at the Augusta, Ga., quarry of the Superior Stone Company, Raleigh, N. C. Thanks to an effective preventive maintenance program, which includes proper lubrication with Gulf lubricants, this quarry enjoys exceptionally low repair expense.

Gulf Quality Lubricants

keep equipment operating smoothly at Superior Stone Company

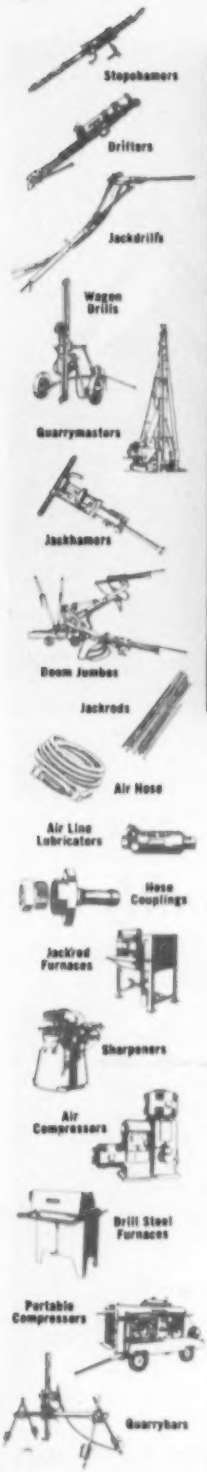
Ask a leading quarry operator like Superior Stone Company why they use Gulf lubricants and you'll get an answer something like this: "We feel that our equipment gains an edge in performance with Gulf lubricants—their extra quality is reflected in smoother, more dependable operation, and lower maintenance costs.

"Then Gulf provides an excellent engineering service to help insure that the most suitable lubricants are used for every unit and operating condition."

Let us discuss with you how Gulf products and fine service can help your operation. They are available to you through more than 1400 warehouses in 31 states from Maine to New Mexico.

GULF OIL CORPORATION • GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA

GULF SERVES INDUSTRY



Everything for Drilling Rock

FROM THE CARSET JACKBIT BACK TO THE COMPRESSOR

TO make the best recommendation for rock drilling equipment you must imagine yourself in the bottom of the drill hole. That's where the real results show up. From there you see only the Carset Jackbit.

But behind this Carset Jackbit there's a completely coordinated line of Ingersoll-Rand rock drilling equipment. Current models of Drifters, Stopers, Jackhamers, Wagon Drills, Jackdrills and Quarrymasters were all designed to take full advantage of longer-lasting, faster-drilling Carset Jackbits. Add rod and bit shop equipment, mountings, accessories and air compressors, and you have a complete I-R line backed by 80 years of experience, unequalled rock drilling know-how and undivided responsibility.

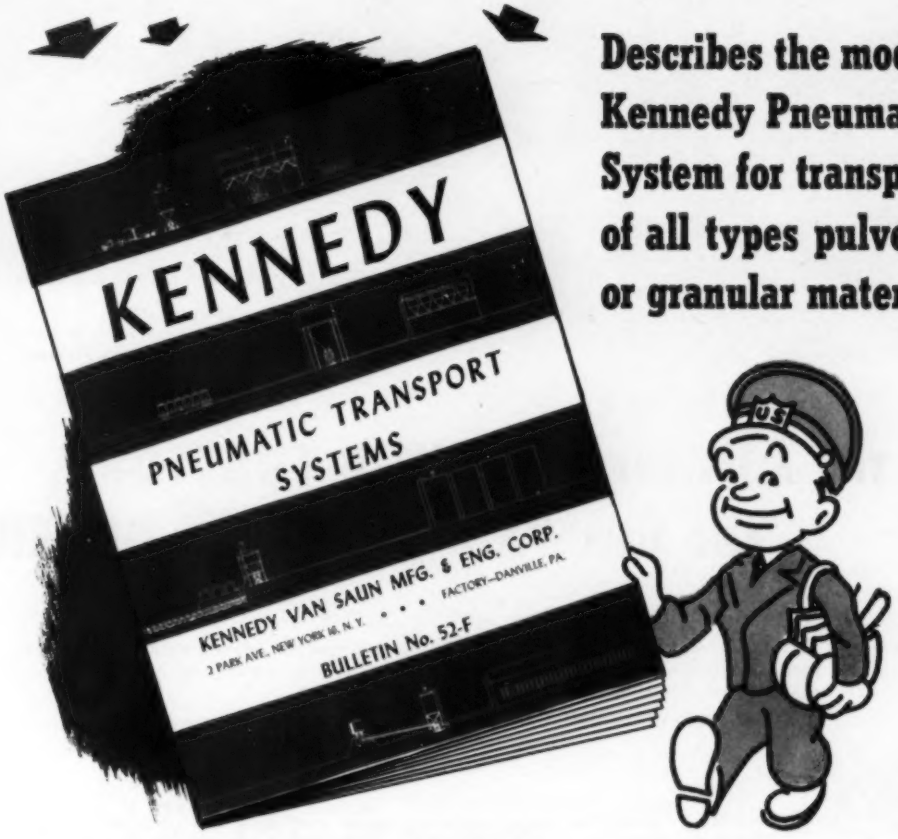
The Carset Jackbit with correct I-R supporting equipment is cutting rock-drilling costs, cutting operator fatigue and increasing production the world over. Whatever your drilling problems, consult your local I-R representative. He can help you solve them.

Ingersoll-Rand
11 Broadway, New York 4, N. Y.

837-5

ROCK DRILLS • COMPRESSORS • AIR TOOLS • CENTRIFUGAL PUMPS • TURBO BLOWERS • CONDENSERS • DIESEL AND GAS ENGINES

Send for your copy—Today!


KENNEDY
PNEUMATIC TRANSPORT SYSTEMS
KENNEDY VAN SAUN MFG. & ENG. CORP.
2 PARK AVE., NEW YORK 16, N. Y. • • • FACTORY—DANVILLE, PA.
BULLETIN No. 52-F
US

Describes the modern Kennedy Pneumatic System for transporting of all types pulverized or granular materials!

AN IDEAL SYSTEM FOR HANDLING:
Cement, Finer grades of sand, Finer grades of coal, Pulverized coal, Carbon Black, Pulverized Chemicals, Fullers Earth, Dry Paints, Acids, Mineral Filler, Slurry, Agricultural Lime, Quick-Lime, Fly Ash, Soda Ash, Fire Clay . . . MANY OTHER MATERIALS.

Get your copy of this booklet which describes the MODERN method of transporting pulverized and granular materials. The Kennedy Pneumatic Transport System has almost unlimited applications within plants and for unloading ships and bulk railroad cars. It's a *proven* materials handling system that combines highest efficiency, cleanliness and economy of operation.

IT COSTS LESS.. TO OWN THE BEST!

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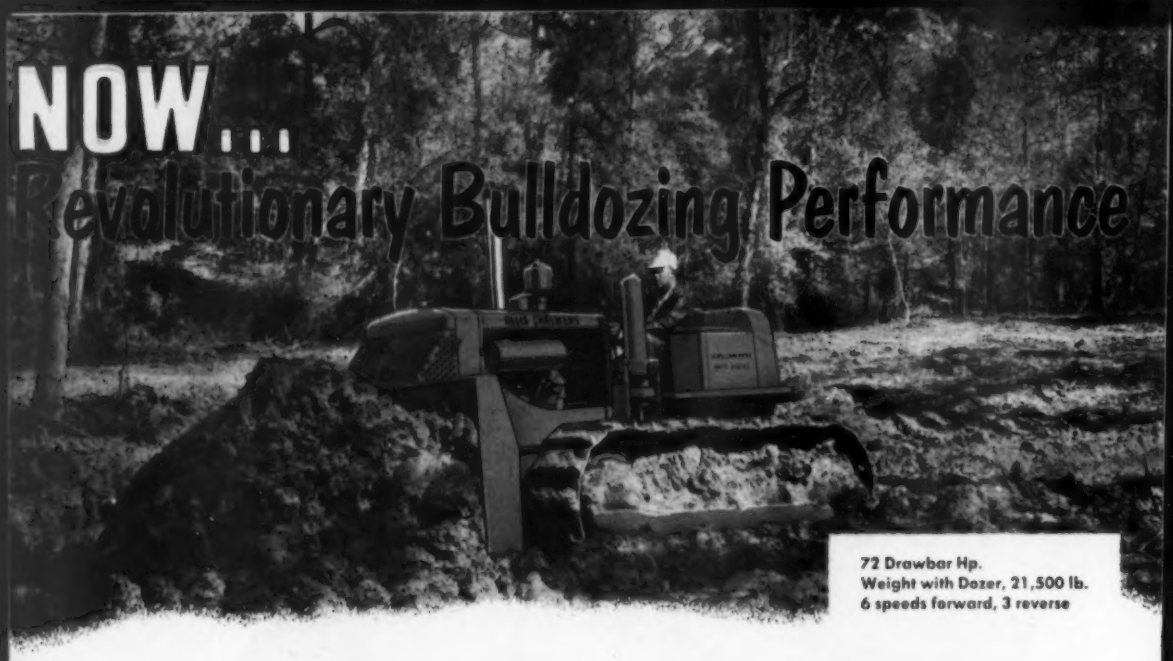
NOW... Revolutionary Bulldozing Performance

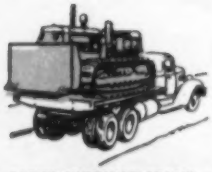


72 Drawbar Hp.
Weight with Dozer, 21,500 lb.
6 speeds forward, 3 reverse

WITH THE ALLIS-CHALMERS HD-9 TRACTOR AND NEW 9X no push-beam DOZER

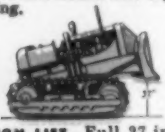
This major bulldozer design improvement brings you new dirt-moving ability . . . new, narrower-width blade for transporting by highway . . . new, low original cost . . . new ease of servicing and operator comfort.

Here's what makes this team the most productive combination for any work:



EASIER HIGHWAY TRANSPORT. Blade is but 8 ft. wide—no transport permit needed.

BITES DOWN HARD. Full 13-in. drop below ground, positive down pressure plus steep angle of penetration means fast digging.



HIGH LIFT. Full 37 in. above ground. Excellent for pushing over trees and stumps and clearing brush.

A GREAT TRACTOR. This popular Allis-Chalmers HD-9 Tractor has power, weight and balance that puts it in a class by itself—never such traction . . . such pushing and pulling ability.

A REVOLUTIONARY TEAM. Here is a tractor-dozer combination designed together as a unit, which compares in performance with conventional "dozers" weighing from five to six thousand pounds more.

NO PUSH BEAMS. A completely new idea in bulldozer engineering, the Baker 9X blade is mounted directly to the HD-9 main frame. Tractor main frame and dozer are raised and lowered as a single unit.

LIGHTER WEIGHT—BETTER STABILITY. Almost 1,150 lb. lighter than standard dozer. Costs less to buy. And with lighter blade mounted 15 inches closer, tractor center of gravity is not upset. No excess wear on front truck wheels and support rollers.

BIG DIRT MOVER. Because of extra clearance, greatly increased track oscillation and better balance, this team is a phenomenal performer in mud and tough going. And with blade fully six inches higher, capacity is kept on par with conventional blade.

SIMPLIFIED SERVICING. 1,000-hour lubrication of truck wheels, idlers and support rollers. Dozer mounting does not interfere with engine accessibility. No removal of major tractor assemblies. Hinged grill swings out for easy access to dozer hydraulic pump, or to clean radiator core.

EASY TO OPERATE. Just by pulling a single lever, operator can shift from any of the six forward speeds to any of the three high-speed reverses. This, plus narrow, frame-mounted blade makes the HD-9 particularly fast and maneuverable. With no spring deflection, blade responds immediately and positively to control levers.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

SERVICE PIN... for you, too

Chances are you've seen this pin. It represents 15 years of service with Socony-Vacuum. Six out of 10 of our engineers and salesmen wear it. Four out of 10 have served over 20 years. In fact, the average length of service of *all* Socony-Vacuum lubrication representatives calling on the construction industry is almost 17 years! All this petroleum engineering experience, the world's greatest, is yours when you call on Socony-Vacuum. Why accept anything less?

CORRECT LUBRICATION *for Contractors*

SOCONY-VACUUM

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

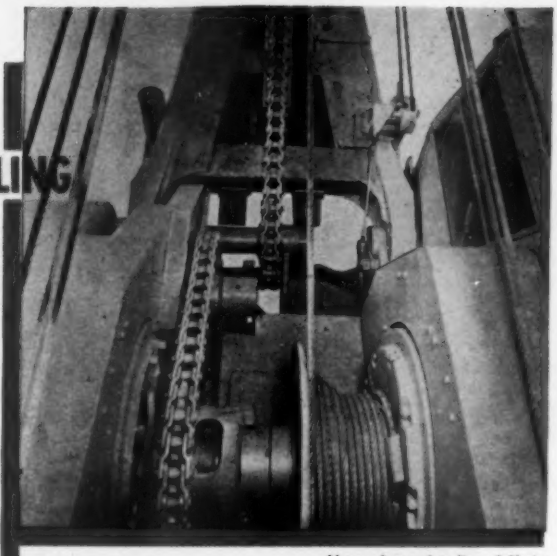
THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL CO., INC., MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

just a few Jeffrey products . . .

FOR IMPROVING HANDLING AND PROCESSING

Space does not permit a complete showing of all the products in the broad Jeffrey line. A few are displayed here to give you an idea — our NEW Catalog No. 418 goes into more detail. It will prove a handy reference if you are interested in improving handling, processing and reducing operations in your plant. Send for your copy TODAY.

BUCKET ELEVATORS—standardized to save you time and money. A type and size, buckets mounted on belt or chain, to give your material a lift . . . to keep production moving in a way that spells more profit for you.

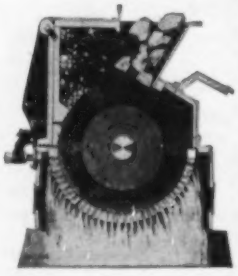


Above: A complete line of Chains and Transmission Machinery . . . bearings, idlers, traction wheels, take-ups, sprockets, gears, hub boxes, couplings, etc.

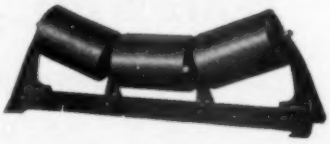
Below: Jeffrey-Traylor Barrel Packer. Cuts shipping costs—reduces size of container as well as increases its capacity. Also electric vibrating Packing Tables, Feeders, Conveyors, Dryers and Coolers.

CAR PULLERS—two sizes for moving from one to six cars. Save time and expense. No locomotive needed.

PULVERIZERS AND CRUSHERS—Rigid or swing hammer, single or double roll, FLEXTOOTH or Rotary Ring types to provide uniform reduction with a minimum of fines. Reduce coal, limestone, gypsum, pulp lap, garbage, metal turnings, alum, chips, sewage screenings, sugar cane, to desired fineness the Jeffrey way.



BELT IDLERS—furnished in both troughing and flat belt types for belt widths from 14" to 60". Idlers are of the anti-friction type, insuring low power cost and smooth performance.



THE JEFFREY MANUFACTURING COMPANY

917 North Fourth St., Columbus 16, Ohio

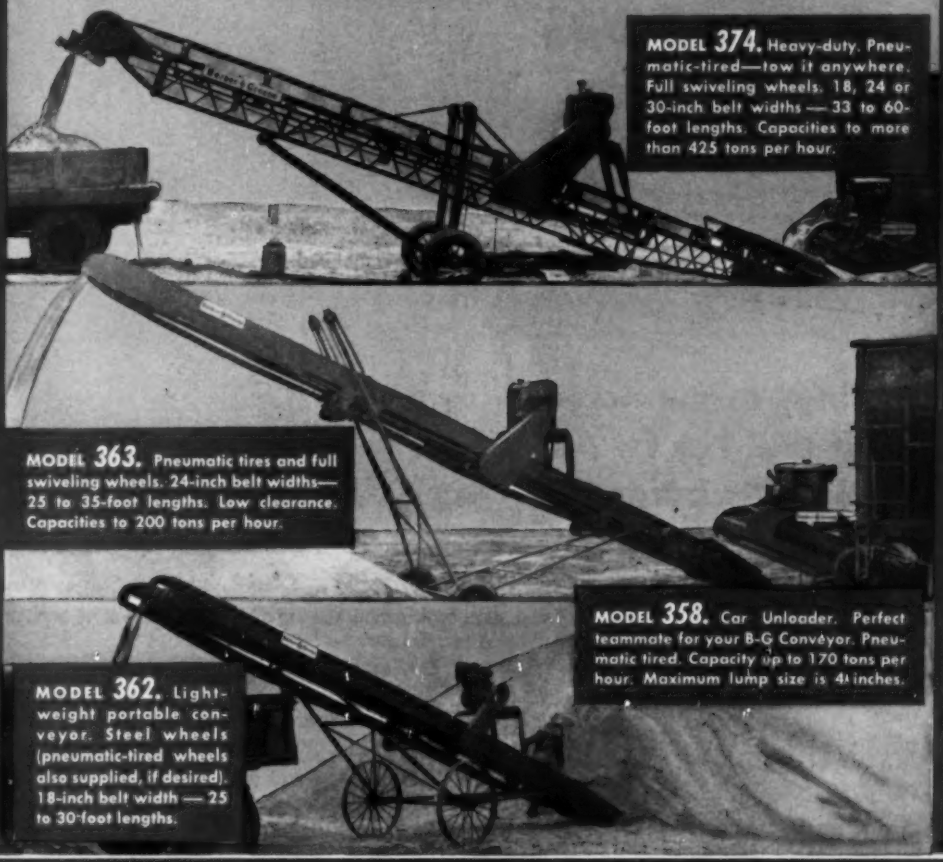
Material Handling, Processing and Mining Equipment

BARBER-GREENE HAS THE

PORTABLE CONVEYORS YOU NEED

Here are three standard B-G Portable Conveyors together with B-G Car Unloader . . . all available for prompt delivery from your B-G distributor. These skillfully designed and ruggedly built machines will—within the limits of their capacities—provide you with the most efficient and economical method of handling sand, stone, gravel, coal, coke, ashes, wet concrete, chemicals, bags and boxes.

In addition to the models shown, Barber-Greene also builds larger capacity portable conveyors. Why not check with your B-G distributor for complete information on portable conveyors?



MODEL **374.** Heavy-duty. Pneumatic-tired—tow it anywhere. Full swiveling wheels. 18, 24 or 30-inch belt widths — 33 to 60-foot lengths. Capacities to more than 425 tons per hour.

MODEL **363.** Pneumatic tires and full swiveling wheels. 24-inch belt widths—25 to 35-foot lengths. Low clearance. Capacities to 200 tons per hour.

MODEL **358.** Car Unloader. Perfect teammate for your B-G Conveyor. Pneumatic tired. Capacity up to 170 tons per hour. Maximum lump size is 4½ inches.

MODEL **362.** Lightweight portable conveyor. Steel wheels (pneumatic-tired wheels also supplied, if desired). 18-inch belt width — 25 to 30-foot lengths.

Barber-Greene BG

Aurora, Illinois, U. S. A.

Nose Brick "Stays Put"

in Rotary Kilns Equipped With

ALLIS-CHALMERS
Air-Cooled
KILN END

Savings in Refractory Brick Will Pay for Air-Cooled Discharge End in 2 to 3 Years!

No end warpage on rotary kilns equipped with this air-cooled discharge end. Hot end stays cool, round and rigid. No shut-downs to replace end brick. In addition to refractory savings, you'll get . . .

MAINTENANCE SAVINGS . . . No loss of valuable production time to replace end brick! Savings in brick, labor and down-time will pay for air-cooled end *several times over* during life of kiln.

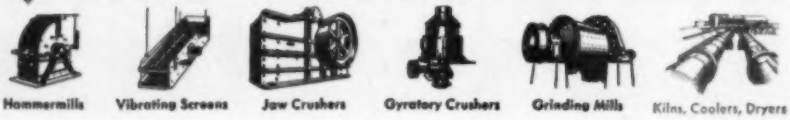
AND FUEL SAVINGS . . . Because the discharge end will not distort, the air seal between the firing hood and the kiln continues to be effective after years of service. Fuel savings result when the temperature of the air inside the kiln is not decreased by infiltering cold air.

A-3934

Air-Cooled kiln end can be installed on kilns now in service. Get more facts from the A-C representative in your area, or send for Bulletin 07B6368A. Allis-Chalmers, Milwaukee 1, Wis.

ALLIS-CHALMERS

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.



Hammermills | Vibrating Screens | Jaw Crushers | Gyratory Crushers | Grinding Mills | Kilns, Coolers, Dryers

Proved Performance

on the toughest jobs

On a wide range of jobs and under the toughest conditions, "Eucs" move more loads or tons per hour at the lowest cost. Large capacity, long life in heavy duty service, and speed on the haul and dump—these are features that assure low cost hauling and dependable performance.

Bottom-Dump Euclids have proved their rugged staying power and ability to do the toughest jobs in off-the-highway construction and industrial work. Powered by diesel engines of 190 to 300 h.p., they range in capacity from 13 to 25 cu. yds., and have top speeds loaded up to 34.4 m.p.h.

Rear-Dump "Eucs" are designed and built to move rock, coal, ore, overburden and other heavy excavation. They range in capacity from 10 to 34 tons, have top speeds up to 36.3 m.p.h. with full payload, and diesel engines of 125 to 400 h.p.

For help with your off-the-highway hauling problems, call your Euclid Distributor today or write for information on the complete line of Euclid equipment for moving earth, rock, coal and ore.

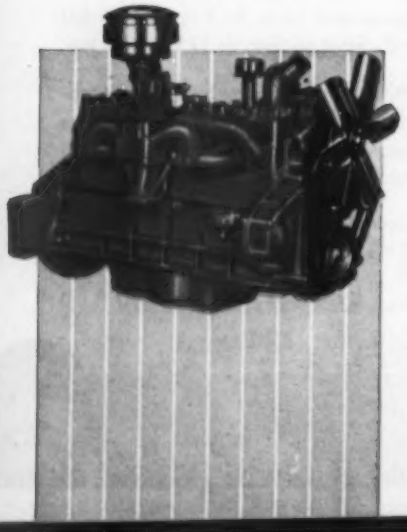
"EUCS" are job proved for more loads per hour and more profit per load.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

EUCLIDS *Move the Earth*

Photo courtesy Unit Crane and Shovel Corporation, Milwaukee, Wisconsin

...more work at less cost with Chrysler power and Chrysler torque converter



Today, all over the country, gasoline-powered versions of the old steam shovel are piling up record after record for volume output, speed and economy of operation.

In the vanguard of modern earth-moving equipment is Unit's model 614 one-half yard shovel, powered by the Chrysler Model 16 Industrial Engine and featuring the Chrysler torque converter as standard equipment. Unit operators find this an ideal combination since, in giving them fast, dependable power without risk of stalling, work output is *increased* while fuel consumption is actually *decreased*. Moreover, the smooth application of power through the torque converter eliminates shock loads to engine and equipment, thereby reducing maintenance costs.

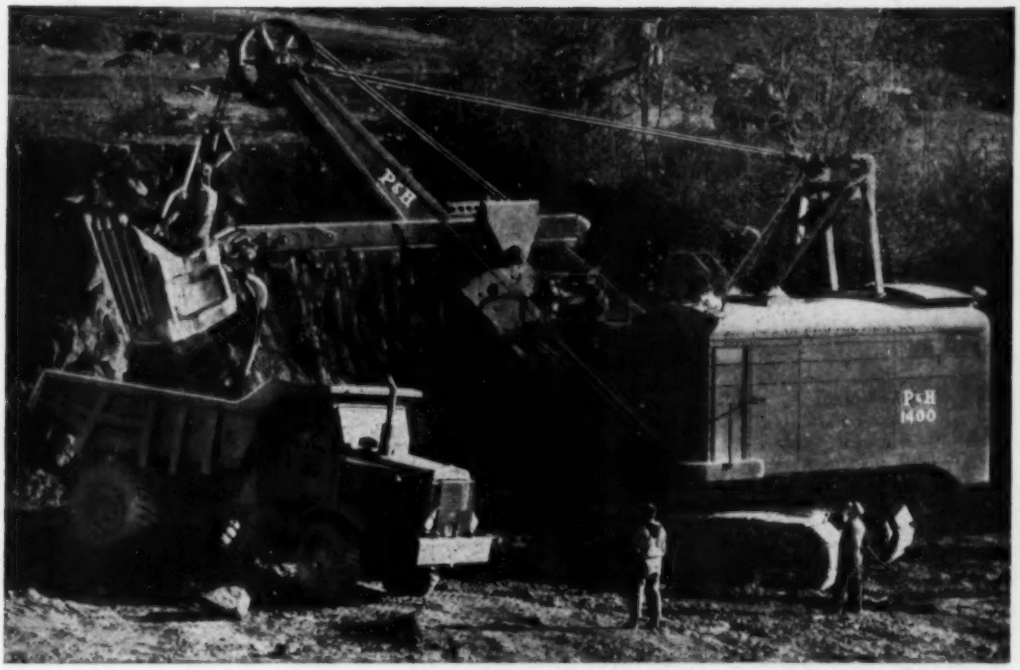
This is but another example of how Chrysler is meeting the many and varied requirements for industrial power. For example, Chrysler can supply manufacturers with a corrosion-resistant or fungus-treated electrical system, a propane or natural gas-burning carburetor, three, four or five-speed transmission, standard or gyrol Fluid Drive.

Despite all these advantages, Chrysler Industrial Power is not expensive. Production-line methods adapted to specialized industrial engine building, provide a custom-built engine at mass-production prices.

See a Chrysler Industrial Engine Dealer. Or if your problem is special, write us direct: ***Dept. 142, Industrial Engine Division, Chrysler Corporation, Trenton, Mich.***

CHRYSLER
Industrial Engines

HORSEPOWER **WITH A PEDIGREE**



MODERN P & H ELECTRIC SHOVEL with electro-magnetic type clutch and P & H stepless power regulation—Harnischfeger Corporation, 4400 W. National Avenue, Milwaukee, Wisconsin.

Mr. Strip Miner:

"WHAT'S A GOOD SHOVEL WORTH?"

In today's market, the cost of a large, modern electric stripping shovel runs somewhere in the neighborhood of a quarter of a million dollars! A tidy sum indeed!

But aside from the initial dollars invested, your strip shovel is the key to your operation . . . the hub around which your operation revolves. When it's out of action, it leaves a tremendous hole in your production parade . . . a gaping hole that's immediately reflected in dollar profits.

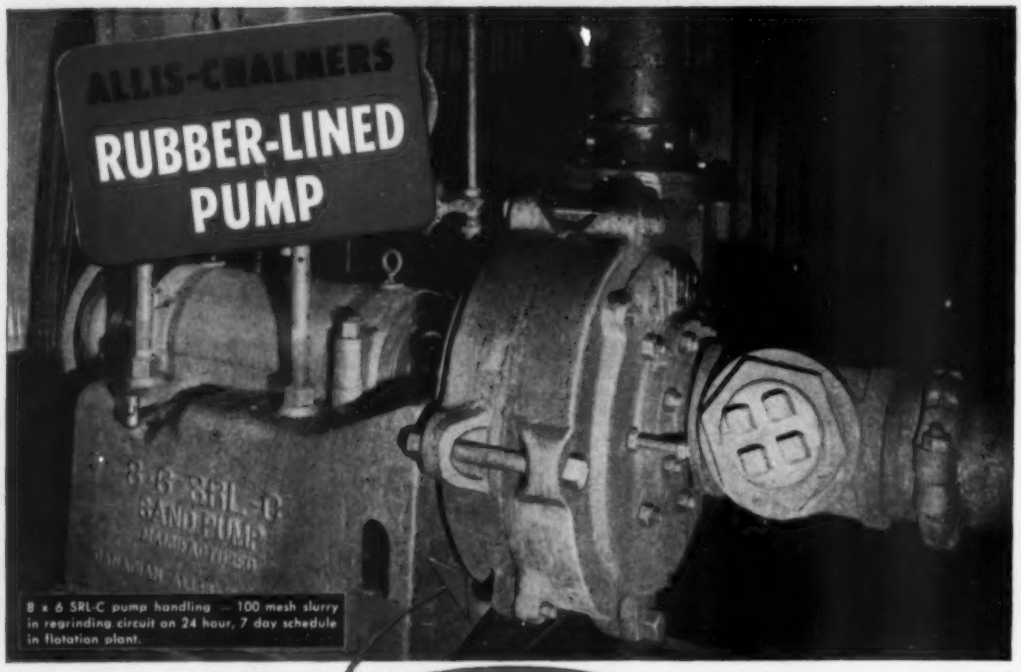
We're sure you'll agree that your strip shovel is certainly worth every effort and expense necessary to see that its many vital moving parts are efficiently and expertly lubricated.

THAT'S WHERE THE COMPLETE LINE OF CITIES SERVICE LUBRICANTS CAN SERVE YOU. Cities Service offers one-source lubricant buying for you. There is a Cities Service Lubricant for every lubricating point on your shovels . . . electric motors, bearings, gears, cables. Actually, the complete Cities Service Line can cover all your needs in all mining operations . . . from the lubrication of locomotives, mine cars, tractors and motor trucks, right down to tempering and quenching oils that may be required in your equipment repair shop.

Why not try the Cities Service one-source plan? You'll find it saves time in buying, cuts equipment down-time, and adds dollars to your profit column. Call your nearest Cities Service office or write Cities Service Oil Company, Dept. B15, Sixty Wall Tower, New York City 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS


ALLIS-CHALMERS
RUBBER-LINED
PUMP
8 x 6 SRL-C pump handling — 100 mesh slurry in regrinding circuit on 24 hour, 7 day schedule in flotation plant.

Here's How THIS PUMP Cuts Slurry and Slime Pumping Costs

SPECIAL RUBBER COMPOUNDS, engineered to fit each application, resist wear of even the most abrasive slurries and slimes. Original capacity and efficiency are maintained over long periods. Records show that the Allis-Chalmers rubber-lined pump has a service life 10 to 50 times greater than the finest alloy pumps when handling finely divided, highly abrasive materials. This means that the higher price of the rubber-lined pump is saved many times over in lower maintenance cost and less lost production due to shutdowns. The stuffing box, too, is specially designed to reduce packing wear.

EASY MAINTENANCE

Maintenance on the Allis-Chalmers rubber-lined pump is easy. All parts normally requiring attention are accessible for inspection, adjustment or replacement. The casing can be parted easily when impeller and liners must be checked. The stuffing box is easy to work on.

The casing liners are of unique construction. The rubber compound is pressure-molded to steel frames. The liners fit into casing easily and are held securely in place by studs which are part of the steel frame and are securely embedded in the rubber. Liners and the impeller can be renewed without removing the pump from its location and spares can be kept on hand.

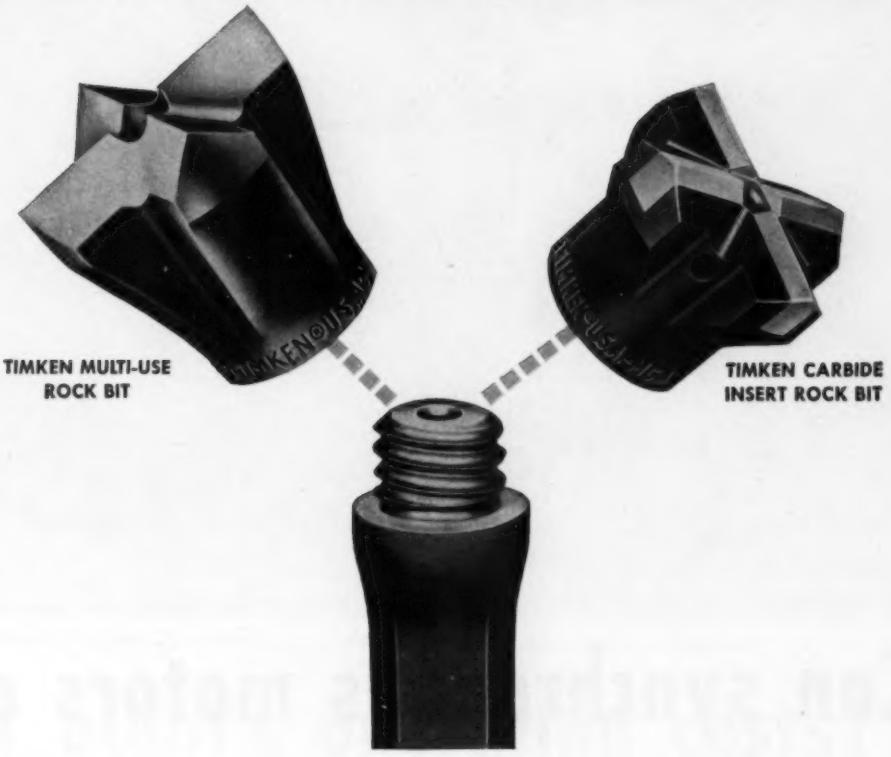
COMPETENT APPLICATION ENGINEERING

Allis-Chalmers application engineers are thoroughly familiar with all types of solids pumping problems. Allis-Chalmers can furnish you a complete pumping unit — pump, motor, control and drive — all of coordinated design and manufacture. For help on your solids pumping problems, call your nearest Allis-Chalmers District Office. For more information on the A-C Rubber-Lined Pump, write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 08B7311.

A-3897

ALLIS-CHALMERS

Let one steel do the work of two with interchangeable TIMKEN® bits!



YOU don't need separate steels for each bit type when you use Timken® interchangeable rock bits. One steel does the work of two because both the Timken multi-use and carbide insert bits fit the same drill steel. With the two Timken bit types and only one steel you can switch quickly to the most economical bit as the ground changes. And you can do it right on the job.

Use Timken multi-use bits for ordinary ground. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

For greatest economy when you hit hard or abrasive ground, switch to Timken carbide insert bits. They're your best bet for maximum speed drilling, constant-gage holes, small diameter blast holes and very deep holes.

Have both types of Timken bits on hand, and you'll have the answer to every one of your drilling problems.

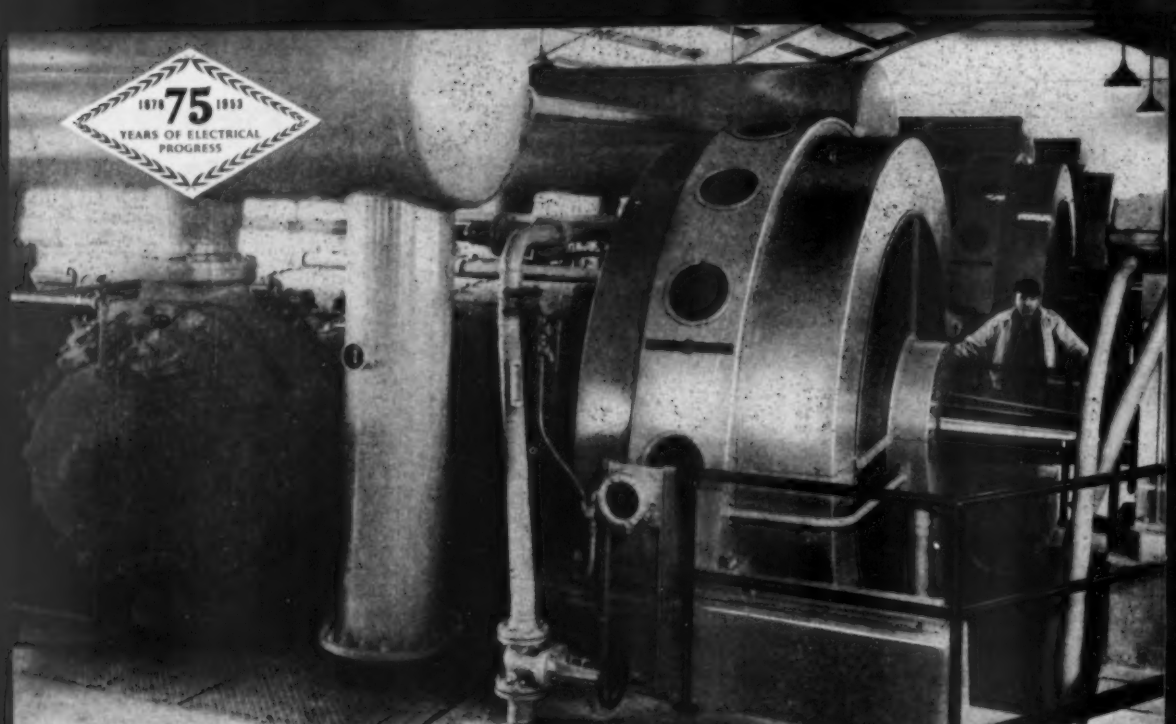
Timken carbide insert bits and multi-use bits are interchangeable in each thread series. And they have these three important advantages: (1) made from electric furnace Timken fine alloy steel, (2) threads are not subject to drilling impact because of the special shoulder union developed by the Timken Company, (3) quickly and easily changed.

More than 20-years experience of our Rock Bit Engineering Service is available to you in helping to select the best bits for your job. Write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

your best bet for the best bit . . . for every job

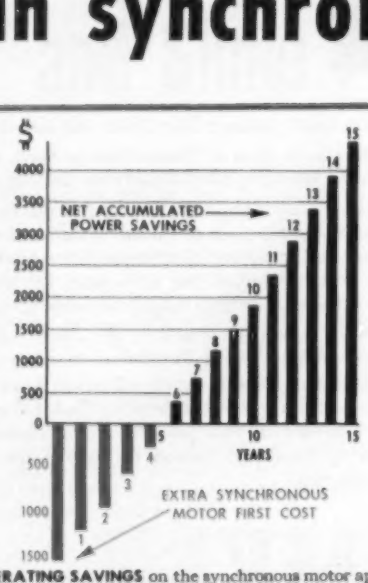
TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.



COMPRESSORS IN A GAS STORAGE STATION are driven by General Electric 3000 hp, 300 rpm synchronous motors.

Can synchronous motors cut

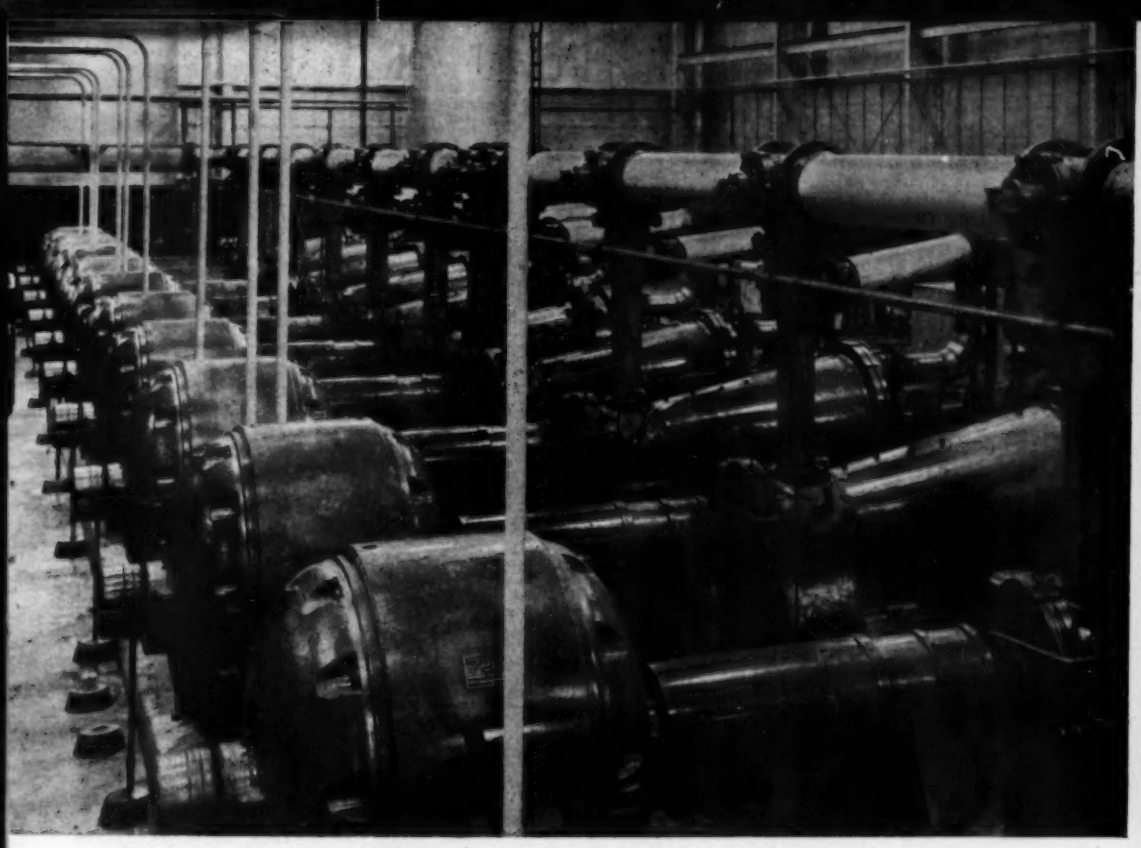


OPERATING SAVINGS on the synchronous motor application described above are shown over a period of twenty years. Extra first cost will be amortized in five years; savings will continue for many more.

Here's how one plant saves with a G-E Synchronous Motor

The specifications for a new pump motor were 250 hp, 600 rpm, 2300 volts, 3 phase, 60 cycle. The price of a 1.0 Power Factor synchronous motor, including exciter and control, was higher than an equivalent squirrel-cage induction motor with control. However, the synchronous motor efficiency, including exciter loss, was 1.6% higher than the induction motor (93.0% vs 91.4%). Since the motor was to operate continuously at a power cost of 11 mils per kilowatt-hour, it was found that the power savings would repay the additional investment in only five years. The operating savings will continue throughout the life of the motor—10, 20, even 30 years.

Savings such as these make synchronous motors the most economical drive for many heavy-duty, continuous-service applications. And in many cases, synchronous motors are lowest in first cost, too.



GENERAL ELECTRIC 400 HP SYNCHRONOUS MOTORS are coupled to ten Jordans in a paper mill.

your plant's operating costs?

Greater Efficiency on Large, Constant-Speed Applications Can Lower Power Costs Substantially

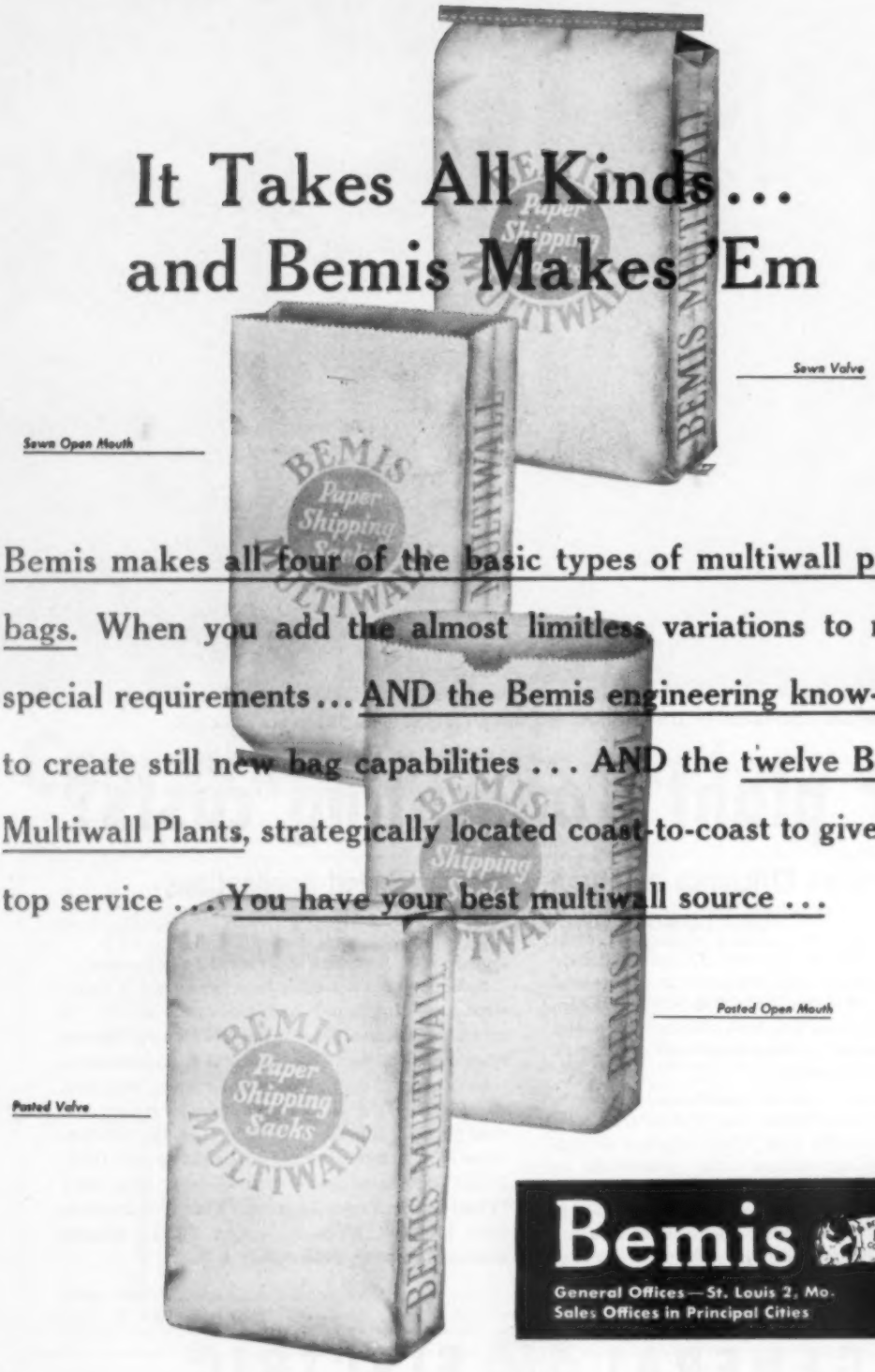
On certain applications selection of General Electric synchronous motors can bring about substantial savings in plant operating costs. Synchronous motors usually have a higher full-load efficiency than any other type of motor, produce more work per dollar's worth of power consumed.

Furthermore, synchronous motors may be able to improve plant power factor—the ratio of total kilowatt load to total kva load. When these two fall out of balance, high system losses, high power bills, or increased maintenance costs commonly result. Using a *unity power factor* synchronous motor adds only to total kw load. And, a *leading power factor* synchronous motor will actually supply reactive kva's to your system, while operating at its normal rated output.

Before you select a drive for a large piece of equipment providing heavy and continuous service, be sure to investigate the economics of General Electric synchronous motors. Call in your G-E representative—he'll be glad to discuss your situation with you. Also, information on G-E synchronous motors and their application is available in the following bulletins: GEA-5332, "Low-Speed Synchronous Motors;" GEA-5426, "High-Speed Synchronous Motors;" GEA-5817, "Plant Power Factor Improved With G-E Synchronous Motors." Write to Section 770-27, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

It Takes All Kinds... and Bemis Makes 'Em



Bemis makes all four of the basic types of multiwall paper bags. When you add the almost limitless variations to meet special requirements... AND the Bemis engineering know-how to create still new bag capabilities ... AND the twelve Bemis Multiwall Plants, strategically located coast-to-coast to give you top service ... You have your best multiwall source ...

Bemis BAG COMPANY

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

Eaton 2-Speed Axle Trucks

More than a Million-and-a-Half in Trucks Today!

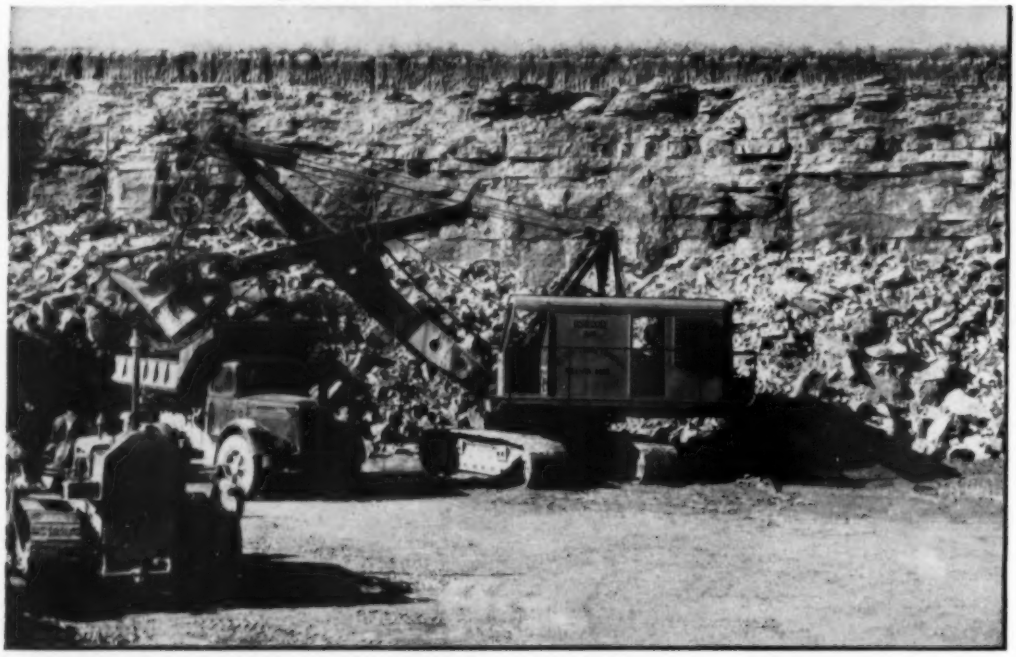
make more full-load trips, quicker, at lower cost

Quicker trips with no sacrifice of payload. Lower operating and maintenance cost, because engines operate in their best speed range. Less wear and strain on engine and vehicle. More miles in the life of the truck. Higher trade-in value. Eaton 2-Speed Axles will lower your hauling costs for you. Ask your truck dealer to prove it.

EATON AXLE DIVISION
MANUFACTURING COMPANY
CLEVELAND, OHIO

PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

Widen your profit margin!



OSGOOD ROCK SHOVELS with Torque Converters load more rock...in less time...with less wear

OSGOOD-GENERAL
Power Shovels, Cranes, Draglines,
Clamshells, Pile Drivers and Hoes
10 to 60 tons capacity
½ to 2½ Cubic Yards
Crawlers, Trucks, or Wheelmounts
Diesel, Gasoline or Electric
Machines designed with your profit in mind

Reports from the quarries reveal that OSGOOD Shovels with Torque Converters are setting new production records because of faster loading cycles and smoother operation that drastically reduces wear and maintenance. Operators especially like the fact that these OSGOODS cushion the shocks and will do anything in the book—even "pick-toe," for instance—a maneuver that is practically impossible with many other machines. For detailed information, consult the nearest OSGOOD-GENERAL Distributor.

OSGOOD O-G GENERAL

MARION, OHIO

OVER 100 YEARS OF ENGINEERING PROGRESS

NEW HORSEPOWER!
NEW BRAKING POWER!
NEW EARNING POWER!

Biggest truck values of the year! New, just-announced Dodge trucks with features like . . .

7 high-compression engines, with 100 to 171 horsepower, give you more ton-miles per hour, more deliveries per day! New styling inside and out, tough new floors in pick-up and panel bodies, new tighter-than-ever tailgates on pick-ups and expresses! A total of more than 50 brand-new features to boost truck earning power!

More, you get such famous Dodge extra values as lightweight aluminum-alloy pistons, rivetless Cyclebond brake linings on all hydraulic brakes, moistureproof ignition, shot-peened rear axle shafts! Get more truck for your money . . . see your neighborly Dodge dealer!

NEW!

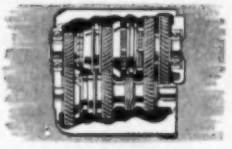
MORE POWERFUL ENGINES!

7 high-horsepower engines! 3 brand-new, with increased displacement, greater cooling capacity, twin carburetion available on larger trucks!

NEW!

BETTER BRAKING!

Super-safe brakes stop smoothly, easily, with less pedal pressure! New increased stopping ability on 1- thru 2½-ton trucks!



NEW!

NO GEAR-SHIFTING!

Truck-o-matic transmission with gyrol Fluid Drive available on ½- and ¾-ton models! Saves shifting, yet lets you rock out of snow, mud!

NEW!

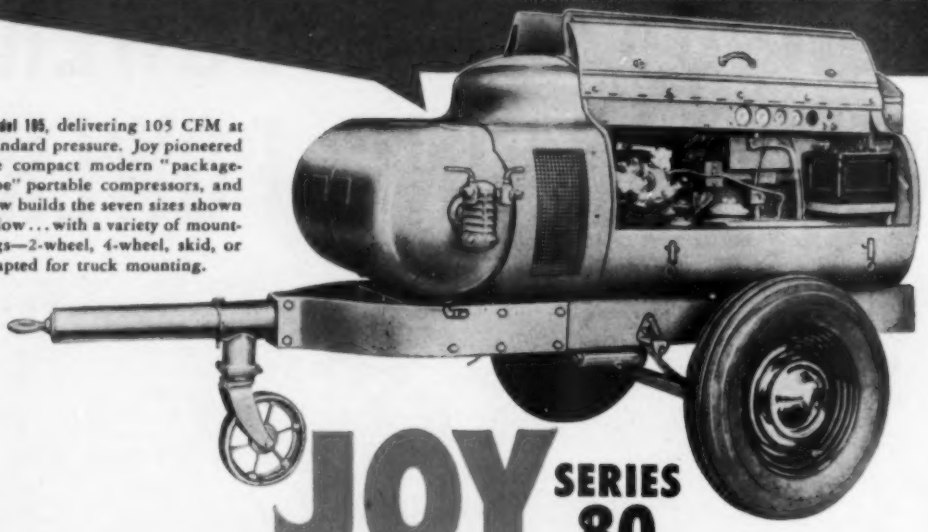
OVER 50 FEATURES!

Reinforced cab construction, larger exhaust system, new 116" wheelbase ½-ton pick-up! Dodge-Tint glass, higher output heaters available!

There's one to fit your job . . . ½-ton through 4-ton. See your friendly Dodge dealer.

DODGE "Job-Rated" TRUCKS

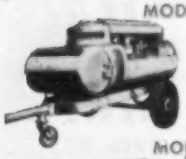
Here's Portable AIR POWER at Lowest Cost and Topmost Efficiency



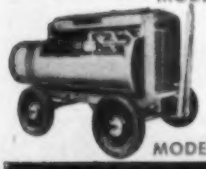
Model 105, delivering 105 CFM at standard pressure. Joy pioneered the compact modern "package-type" portable compressors, and now builds the seven sizes shown below... with a variety of mountings—2-wheel, 4-wheel, skid, or adapted for truck mounting.

JOY SERIES 80 PORTABLE COMPRESSORS

MODEL 60



MODEL 160



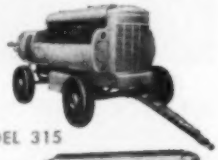
MODEL 210

Compare these Features!

- ★ 2 STAGE COMPRESSION
- ★ AUTOMATIC "ECONO-MISER" LOAD CONTROL
- ★ SEVEN SIZES—60 TO 630 CFM
- ★ NOTHING TO MATCH THEM FOR MODERN, COMPACT DESIGN—PORTABILITY—RELIABLE AND EFFICIENT OPERATION

WRITE FOR BULLETINS!

WAD C-2074



MODEL 315

MODEL 500

MODEL 630

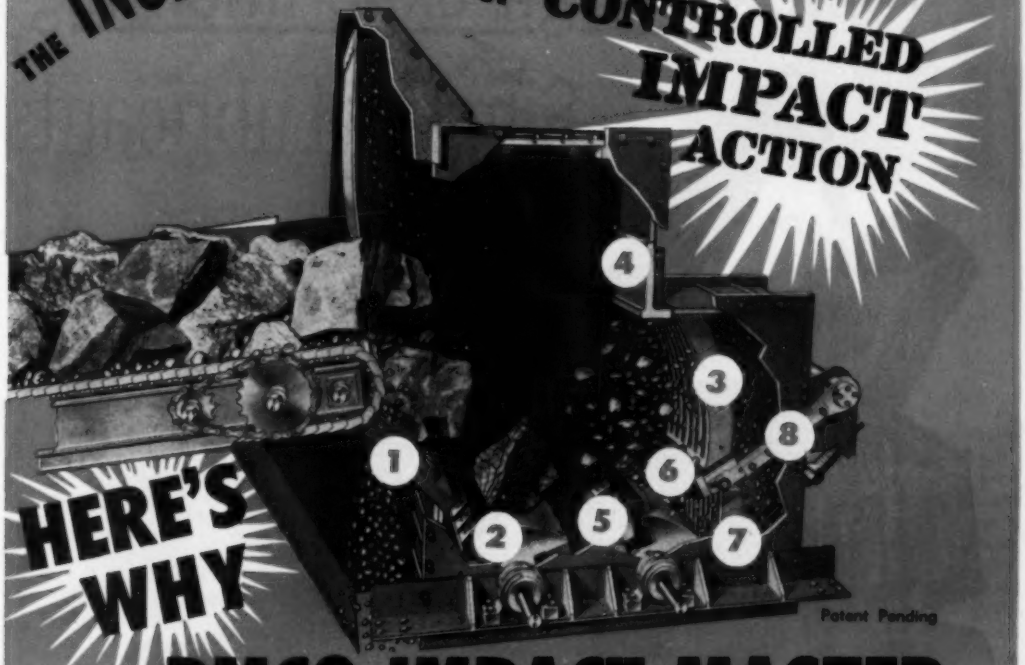
Consult a Joy Engineer

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

THE INSIDE STORY OF CONTROLLED IMPACT ACTION



HERE'S WHY

THE PMCO IMPACT MASTER

gives you top capacity . . . lower costs . . . greater control of finished product size

Adjustable feed plate (1) guides in-coming rock at proper angle into first rotor hammer circle (2). Infed rock is intercepted in motion, exploded instantly by the terrific impact of the rotor hammers and simultaneously projected toward deflector screen grate (3) where finished sizes are immediately discharged.

Oversize particles are deflected upwards, intercepted by feed chute back plate (4) and guided downward into the path of the second rotor hammer circle (5) where they are exploded and projected toward the bottom half of the deflector screen grate and the lower screen grate (7) for immediate discharge.

Both rotor hammers rotate in the same direction toward the rear, promoting fast feeding and keeping all material flowing toward the discharge for top capacity.

Finished product sizes are controlled by the speed of the rotor hammers, and by simple adjustments (8) of stripper bar (6) and lower screen grate.

By controlling the infed rock and directing its flow, the breaking is accomplished by the impact of rotor hammers upon the rock. This reduces wear and makes possible the more uniform gradation cubical aggregate.

GET THE FULL PROFIT-MAKING STORY

Write for literature. Get complete details on the PMCO Impact Master. Learn all about its high ratio of reduction which eliminates secondary crushers and auxiliary equipment. Get top quality uniform gradation cubical aggregate and greater production of saleable finished sizes. Impact Masters are used in open and closed circuits for producing road-building and concrete aggregates, and can be adjusted for the simultaneous production of aglime when desired. They are available with capacities to 750 tons per hour. Write today.

PMCO Impact Master Division, Universal Engineering Corporation, 625 C Avenue N.W., Cedar Rapids, Iowa

UNIVERSAL ENGINEERING CORPORATION *Subsidiary of* **PETTIBONE MULLIKEN CORPORATION**

625 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 West Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

"We're through experimenting! ...Sinclair Lubricants suit us to a T"

... says Al DeFeo, Sette Engineering Co., Paramus, N. J.

Mr. DeFeo's job as Treasurer and Purchasing Agent is to see that maintenance costs on the company's heavy excavation and road building equipment are kept at their lowest figure. He reports: – "Our books give us an exact picture of how our equipment is holding up . . . About 10 years ago we experimented with different brands of lubricants, looking for one that would suit our equipment requirements to a 'T'. After trying Sinclair lubricants, *our figures proved* we finally had the right products. With Sinclair TENOL® and Sinclair LITHOLINE® Multi Purpose Grease we cut maintenance costs to a new low. Experimenting proved one thing to us – Sinclair is tops."

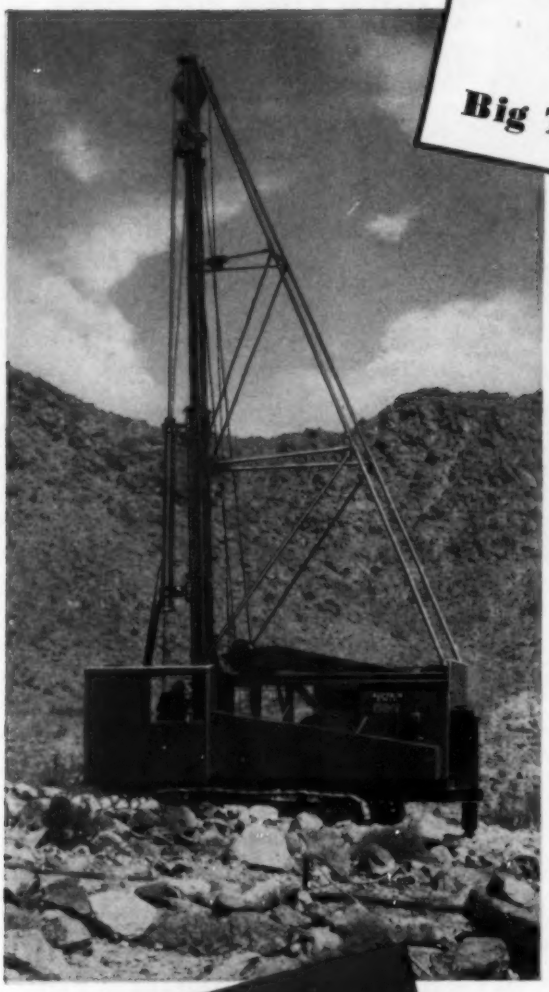
To cut *your* maintenance costs, try Sinclair Lubricants. Contact your local Sinclair Supplier or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

For your tough jobs

SINCLAIR LUBRICANTS

New BUCYRUS-ERIE 50-T

Big Time Rig for Big Time Operations



HERE'S the largest capacity, mobile churn-type blast hole drill on the market today. It's the new Bucyrus-Erie 50-T, successor to the well-known 42-T used and preferred by quarry operators the world over for the past 16 years. The new 50-T gives you all of the popular advantages of its predecessor plus many improvements based on Bucyrus-Erie's unequalled experience in manufacturing blast hole drills. Some features that make the 50-T stand out are:

NEW TUBULAR TYPE TOOL GUIDE steadies and guides the tools when a new hole is started, enabling the operator to run drill at maximum speed from the very start of the drilling operation. Guide opening and closing is hydraulically controlled.

HYDRAULIC LEVELING JACKS two at the drilling end and one at the power unit end, make leveling fast and easy. Jacks are 5½ inches in diameter and have a 36-in. maximum travel. Jack supports are an integral part of the drill frame.

NEW HEAVIER DERRICK MEMBERS to give you all the derrick strength needed to meet toughest drilling conditions. Lower section has 10-in., 15.3 lb. channels; upper section 9-in., 13.4 lb. channels.

POWER DRIVEN TOOL WRENCH, built into the operator's platform, makes easy work of setting up or loosening tool joints. Proper pressure for tightening up tool joints is determined by means of a hydraulic torque indicator.

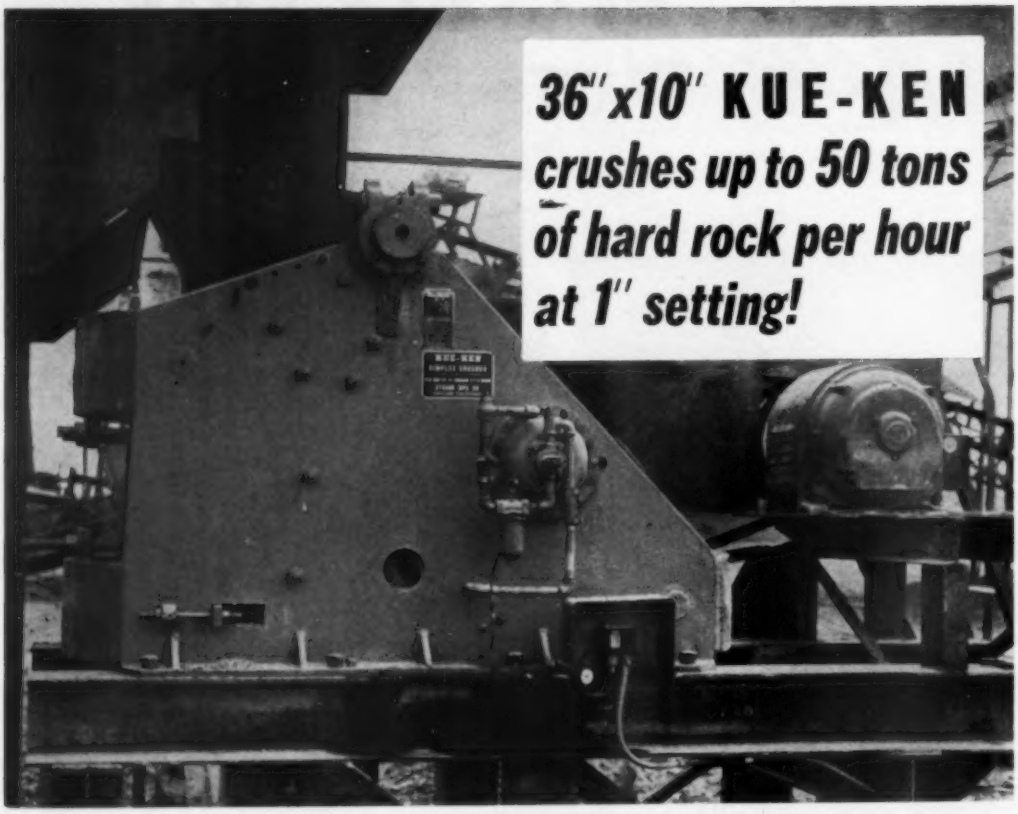
Write for complete information. You'll be convinced that the new, powerful 50-T can make money for you!

1853C

Handles 6,000 lbs. of tools
Drills 9" to 12" holes

BUCYRUS ERIE

SOUTH MILWAUKEE
WISCONSIN



If you're interested in high capacity crushing, it will pay you to investigate KUE-KEN. Delivering 375 crushing strokes per minute, (25 to 50% more than any other crusher). KUE-KEN gives you the highest capacity crushing available today.

You'll be amazed at how much a KUE-KEN reduces maintenance, too. That's because only KUE-KEN permanently seals all mechanism against dirt and dust in a "crankcase type" filtered oil bath, and only KUE-KEN crushes with firm direct strokes that practically eliminate jaw plate abrasion.

See your dealer or write for factual illustrated data

KUE-KEN pronounced "QUE-KEN"
U. S. and foreign patents pending

DEALERS: LUND MACHINERY CO., Salt Lake City, Utah; CLOSNER EQUIPMENT CO., San Antonio, Texas; WASHINGTON MACHINERY & STORAGE CO., Seattle, Wash.; CONSTRUCTION EQUIPMENT CO., Spokane, Wash.; HEWITT ROBINS INC., Pasadena, Calif.; EDWARD L. KROPP CO., Portland, Ore.; CAL-ORE MACHINERY CO., Medford, Ore.; MILLER MACHINERY CO., Missoula, Mont.; ANAHUAC MACHINERY CO., Mexico City, Mexico; UNIVERSAL EQUIPMENT CO., Vancouver, B. C.

535 CHESTNUT STREET **OAKLAND 20, CALIF.**

STRAUB MFG. CO.

Kue-Ken Balanced Crushers	Rib Cone Ball Mills	Overflow Classifiers
Kue-Ken Simplex Crushers	Concentrating Tables	Feeders
Kue-Ken Gyratory Crushers	Overhead Eccentric Crushers	Screenwheel Classifiers

Pennsylvania Crusher Co., Exclusive Licensed Eastern Manufacturer and Distributor, Broad and Arch Streets, Philadelphia, Pennsylvania.
Sir W. G. Armstrong Whitworth & Co. (Ironfounders) Ltd., Authorized Licensed Manufacturer and Distributor Close Works, Gateshead-upon-Tyne, England.

IH scores again...

NEW INTERNATIONAL TRUCKS

Proved as only IH can prove 'em

The 307 new features in the *New* International Trucks have been . . .

Proved in the world's most advanced truck Engineering Laboratory at Fort Wayne, Ind., **Proved again** on International Harvester's 4000-acre Arizona desert Proving Ground.

For profit-minded buyers. *New* International Trucks offer an unmatched combination of values—exactly the right truck for the job, unequalled performance, lowest maintenance and operating costs, maximum driver comfort.

Built the IH way. Choose from 168 basic models in America's most complete truck line. Each model embodies engineering principles, used in International's continuing program of truck research and development, that have resulted in hundreds of exclusive International features which have meant greater profits for truck buyers.

New International Trucks are BUILT as only IH can build them, PROVED as only IH can prove them, a VALUE only IH can give you.

Now—the features you want—in America's most complete truck line

New International styling identified by the IH emblem . . . **Exactly the right power** for every job. First truck builder to offer choice of gasoline or LP gas with Underwriters' Laboratories listing in 1½-ton sizes and other models . . . **Diesel power** optional in models rated 22,000 lbs. and over . . . **Designed by drivers for drivers**—Comfo-Vision cab with one-piece Sweepsight windshield. New comfort and interior styling . . . **Steel-flex frames** proved best in the field . . . **Transmissions** to meet any operating requirement . . . **296 Wheelbases** ranging from 102 inches up . . . **Easy starting and greater fuel economy . . . Wide range** of axle ratios for all models . . . **Real steering comfort and control.** Sizes from ½-ton to 90,000 lbs., GVW rating. Now—See The New IH-Built, IH-Proved Internationals at your nearest International Dealer or Branch.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

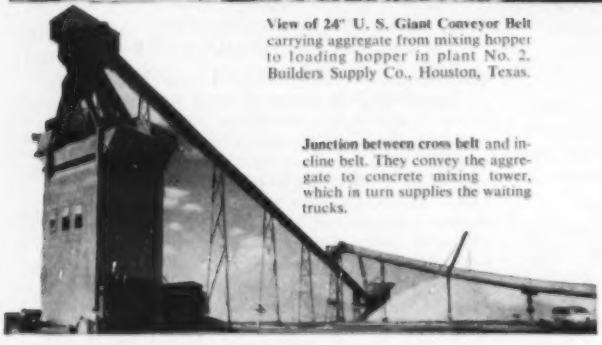
Better roads mean a better America

INTERNATIONAL TRUCKS

Standard of the Highway

How U. S. Rubber belt engineers cut installation costs

View of 24" U. S. Giant Conveyor Belt carrying aggregate from mixing hopper to loading hopper in plant No. 2, Builders Supply Co., Houston, Texas.



Junction between cross belt and incline belt. They convey the aggregate to concrete mixing tower, which in turn supplies the waiting trucks.

In a new concrete mix plant, original plans called for the installation of a 5-ply, 36 oz. duck conveyor belt to handle the aggregates. But United States Rubber Company engineers pointed out that their 4-ply, 42 oz. duck belt would not only cost less, but would be more flexible crosswise to trough, would train more easily and provide high-tensile strength as well. This 1,275-foot, 4-ply U.S. Giant Conveyor Belt was installed. It travels 300' per minute and delivers 294 tons per hour.

This is another instance of why it pays to consult "U.S." engineers before going ahead on a conveyor belt problem. Remember that they are backed by a wealth of experience and vast research facilities. Finally, they will work with your engineers and with the designers of conveyor equipment—a 3-Way Engineering teamwork that always pays off in higher output at lower cost. Write to address below.

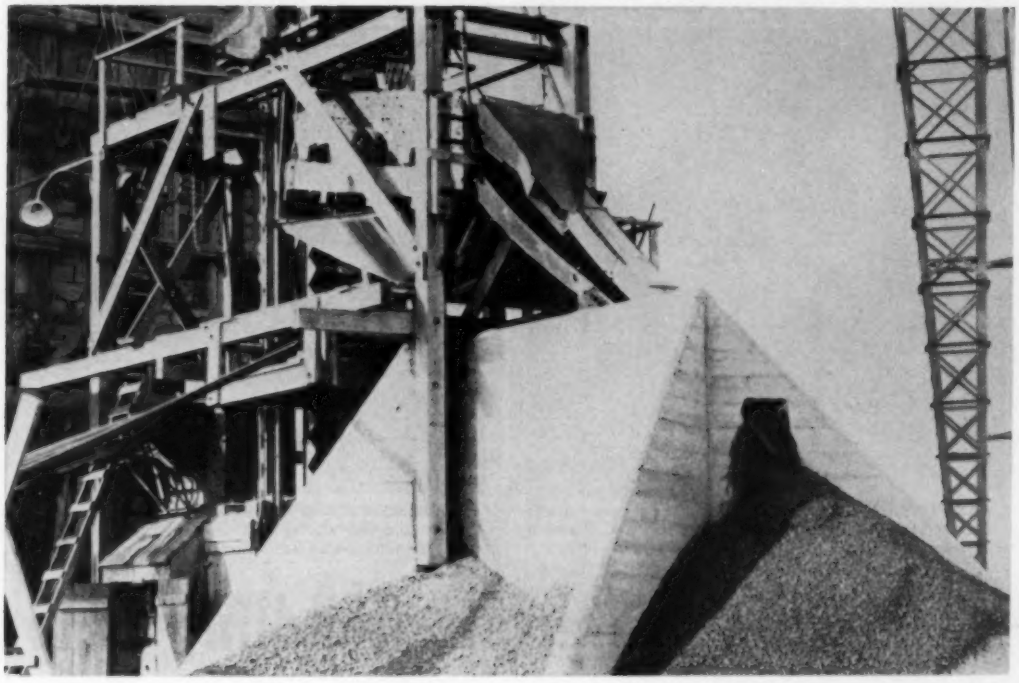
PRODUCT OF U.S. RUBBER — SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

For Accurate Sizing..it's SECO

SAYS OLEAN SAND AND GRAVEL



Progressive Operator Meeting Specs for Penna. and N. Y. Sizes

Here's another on-the-job report of Seco's ability to make sizes to pin-point accuracy.

At the Machias plant of the Olean Sand & Gravel Company, the three deck 4 x 10' Seco pictured here is making Penna. 1B gravel off the second deck, N.Y. 1A off the third deck and sand through the third deck. Olean Sand & Gravel Company serves a large part of southwestern New York State as well as northwestern Pennsylvania, and enjoys a splendid reputation for the quality and accuracy of its sizes.

Perhaps the biggest reason why this and hundreds of other Seco vibrating screens do such an excellent job of sizing is Seco's exclusive ***fully controlled*** true circular action. There's no bobbing, no weaving with a Seco. The vibration stays in the live screen body where it pays off in better screening results. For instance, the screen pictured above was checked by your Seco on-the-job reporter and was found to transmit little or no vibration to the supporting framework.

Why not put smooth performing Seco's on the job? Send for Catalog #203 today.

SECO

TRUE CIRCULAR ACTION

VIBRATING SCREENS

GET IN SHAPE NOW
FOR A GREATER PROFIT SEASON

Obsolete or inefficient screening equipment can rob you of your profits. Find out now how you can replace or expand with Seco vibrating screens engineered to your special needs. We welcome the opportunity to make recommendations. No obligation.

Write, wire or phone

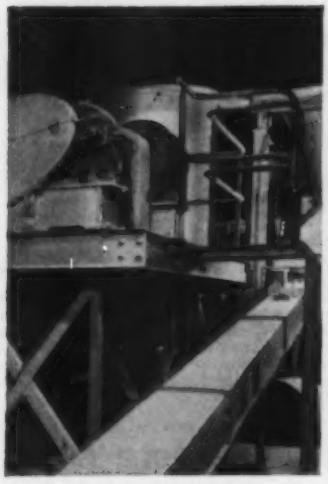
SCREEN EQUIPMENT CO., INC.

1750 Walden Avenue
Buffalo 21, N.Y.

1 LIMESTONE IS DELIVERED in cars from quarry to primary crusher and hammermill. G-E powered crane is used by operator to keep rock from jamming in crusher.

2 CRUSHED ROCK IS CARRIED to storage by a 30-inch, 1200-foot-long conveyor. This sturdy G-E 60-hp motor starts the fully loaded belt without difficulty.

Modern materials handling helps

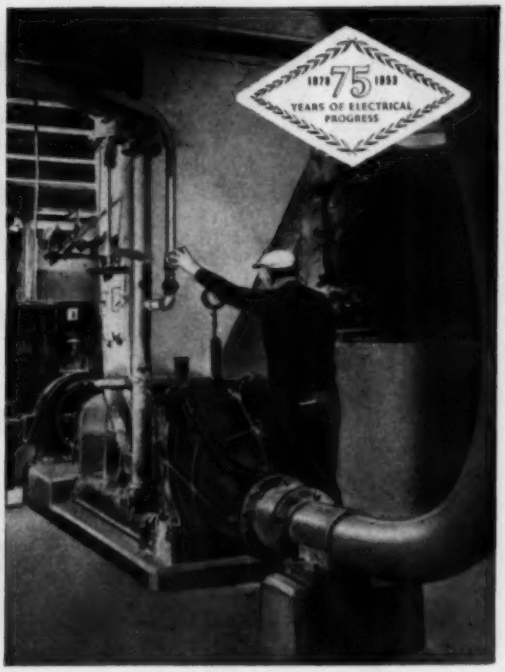


5 PULVERIZED STONE is fed to kilns by screw conveyors powered by a G-E selsyn drive system which coordinates screw speed and kiln rotation.

6 FINISHED CEMENT is pumped to packhouse by portable Fuller-Kinyon pumps. G-E 200-hp drives enable each to deliver 600 barrels per hour.

7 CONVEYOR DELIVERS filled bags to dock for loading into cars. Compact G-E gear-motor transmits maximum torque, provides uniform speed.

3 **ROUGH BLENDING** is done in storage by two G-E powered heavy-duty d-c cranes which dump selected rock into hoppers for delivery to the raw-grinding mills.



4 **FROM GRINDING MILLS** pulverized stone is conveyed through a 10-inch pipe to blending bins. Fuller-Kinyon pump, G-E powered, pumps 120 tons per hour.

Universal Atlas·reach peak output

G-E equipped system at Hudson, N. Y. cement plant keeps operation continuous from quarry to pack-house

Every cement plant has the same kind of materials-handling problem that Universal Atlas Cement Co. faced at their Hudson, N. Y. plant: *to minimize interruptions in the flow of materials being processed.*

Here's how Universal Atlas achieved this goal: their engineers designed a materials-handling system made up of the most up-to-date equipment available. Plans included standby equipment and materials stockpiles at strategic locations to provide for necessary equipment maintenance. Then, reliable, long-life G-E drives were used for the entire system. The success of this carefully planned program is evident today when record production flows smoothly through the plant.

A modern materials-handling system integrated with production operations can eliminate bottlenecks and increase production in your plant. To help you achieve these goals, G-E application engineers are ready to work with you and your equipment manufacturer to solve electrical problems involved. Contact your nearest G-E Apparatus Sales Office today.

Most efficient way to modernize shown in new PROGRESSIVE MECHANIZATION program

To help you set up a step-by-step plan for bringing plant operations to peak efficiency, G.E. has developed the new *Progressive Mechanization Program.* Ask your G-E apparatus representative for details, or write to General Electric Company, Sect. 658-11, Schenectady 5, N. Y.

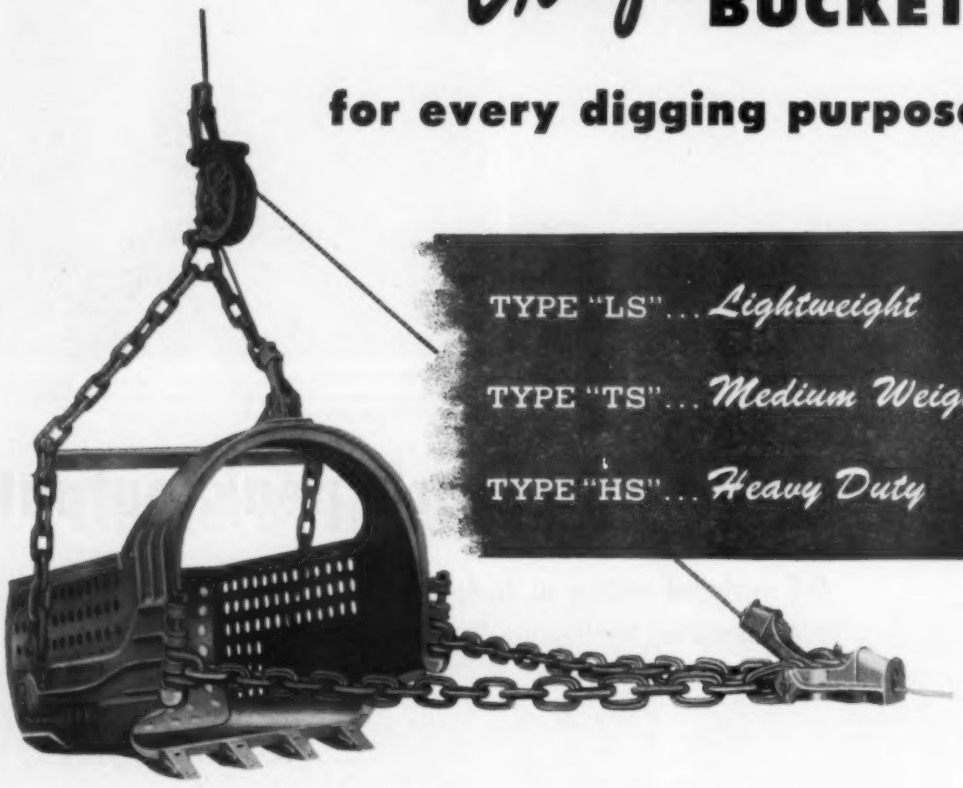
Engineered Electrical Systems for the Rock Products Industry

GENERAL ELECTRIC

HENDRIX

Dragline BUCKETS

for every digging purpose!



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SCREW CONVEYORS

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices in Principal Cities.
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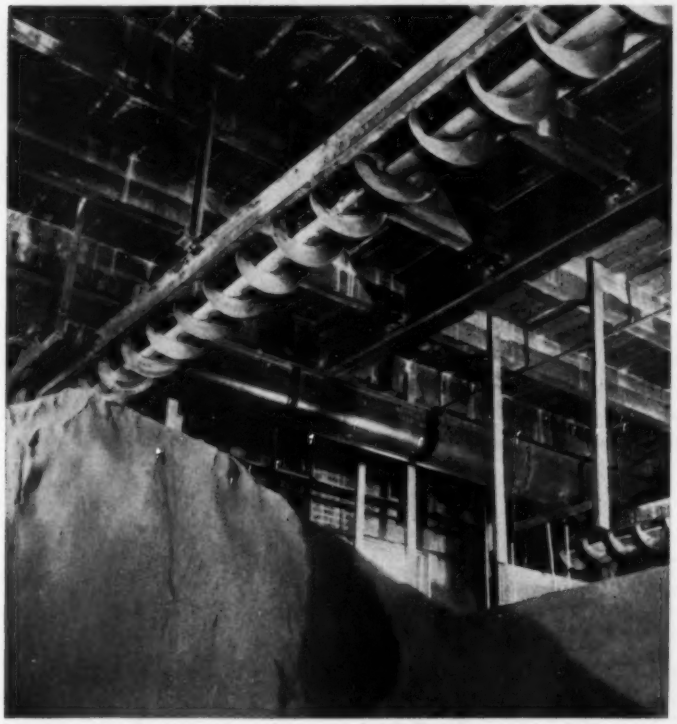
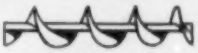


Part of a Link-Belt Screw Conveyor system with open bottom cross conveyors for delivering powdered raw materials from railroad cars to any of 14 bins. The bed of material itself forms the surface over which additional material travels.

LINK-BELT designs and builds all components

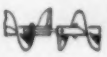
SCREWS—L-B conveyor screws cover the complete field of material characteristics: Helicoid or Sectional for general application; Cut Flight for moderate mixing; Cut Flight with Paddles for added agitation of mixing; with Intermediate Paddles for moderate aeration or stirring; short pitch for inclined conveyors; ribbon flight for sticky, gummy or viscous materials; paddle type for blending dry or fluid materials; stainless steel for corrosion or heat-resistance or sanitation.



HANGERS—L-B hangers—available in a variety of styles and metals—provide a wide variety of mounting, bearing and cover arrangements and are designed for various volume requirements.

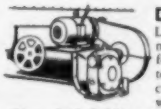
TROUGHS—L-B builds flanged, angle flanged, flared, rectangular, dust-seal, jacketed and drop-bottom types in any metal. Variety of connections, supports, covers and clamps offers added design flexibility.

SPOUTS & GATES—Spouts can be of the plain discharge opening, fixed discharge or detachable discharge types. Slide gates can be hand or rack-and-pinion operated.



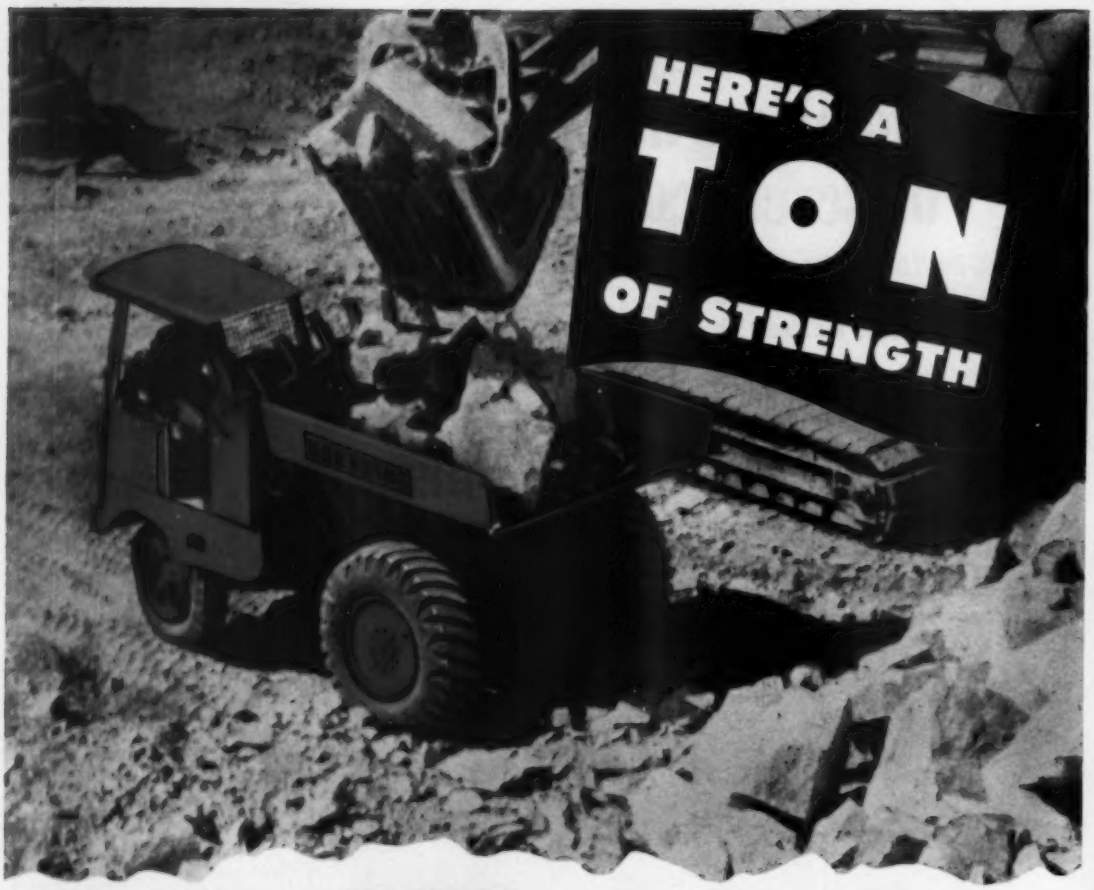
SHAFTS & COUPLINGS—Conveyor drive and end shafts have closely controlled tolerances for correct bearing clearance. Couplings can be of the split flight type to facilitate installation where space is limited.

TROUGH ENDS—Steel plate, cast iron or stainless ends match all trough shapes, provide required shaft bearing support and alignment. Can have seal glands to protect bearings.



DRIVES—Link-Belt engineers many forms of drives to suit specific conditions—worm gear, Electrofluid, P.I.V. variable speed, and chain drives of various types.

Link-Belt can also supply a full range of flanges, thrusts, covers, saddles and countershaft ends.



FOR EVERY TON OF PAYLOAD . . .

When you're loading 1½ to 2½ yards of rock at a pass, hauling units need plenty of strength to last. With Koehring heavy-duty Dumptors, you have a ton of net vehicle weight for every ton of payload capacity. Sides, ends and bottom of all-welded 6-yard body are heavily reinforced with 4" channel ribs. Triple strength steel-oak-steel bottom cushions shocks of rock loading. Free swinging kick-out pan adds another tough steel plate to Dumptor bottom for extra strength.

There's plenty of strength, too, in the Dumptor chassis to take the constant pounding of heavy loading and rough off-road hauling. Heavily-trussed 8" ship channels make up the main frame. 4" chrome steel drive axles are protected by heavy-cast one-piece steel housing. "I"-beam steering axle is cast alloy steel. There are no leaf springs — just one big double-coil chassis spring on the steering axle — none on drive axle. Big drive tires eliminate need for more springs, absorb loading and hauling shocks, save spring maintenance.

Even with this heavy-duty construction, Koehring Dumptors have 6 HP per ton of gross weight — accelerate fast, pull through soft ground and up grades with less shifting — climb 24% grades fully loaded. For less down-time, more work-time, put heavy-duty Dumptors on your jobs.

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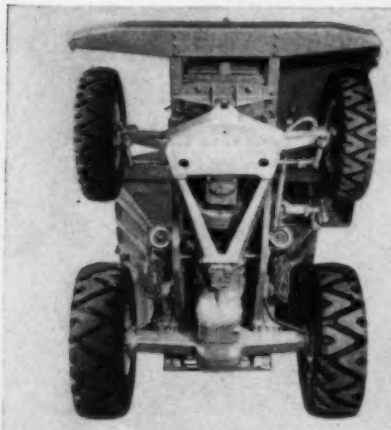
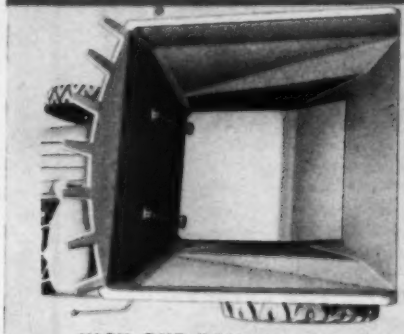


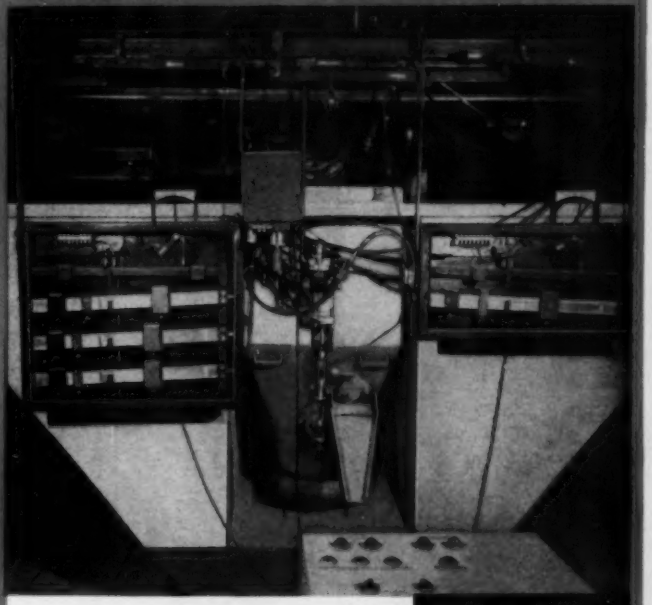
NO "SOFT SPOT" on Dumpter's underside . . . 1-piece, cast steel housing protects drive axle and enclosed chain drive. Wishbone supports the skid plate . . . shields the radius rod and the engine crank case . . . and supports the oscillating steering axle.



KICK-OUT PAN adds an extra 3/16" high-manganese steel plate on top of sturdy Dumpter bottom . . . breaks suction of sticky materials for fast, clean dump. Big 8' x 8' top gives easy-to-hit target for fast loading over the side or end . . . with less spillage.

1-SECOND GRAVITY DUMP . . . no slow-acting body hoists . . . no body-hoist maintenance . . . plus some speeds forward and reverse for no-turn shuttle hauling keep production yardage high, costs low with Dumpters.

CENTRAL CEMENT FEED with Johnson Concentric Batcher



● Central cement feed with Johnson Concentric Aggregate-Cement Batcher prevents "gumming", reduces dusting, pre-shrinks materials. All ingredients are intermingled as they flow through discharge.

● Cement, concrete's most expensive ingredient, is weighed individually on precision-beam scale in a separate batcher hung within the aggregate hopper. Aggregates are weighed on accumulative dial scale, or on individual weigh-beam scales.

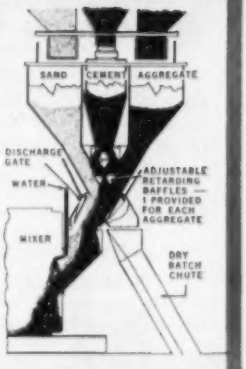
● Adjustable rate of discharge of each aggregate permits accurate ribbon-feeding . . . cement flow cuts off just ahead of final weight, prevents overshooting.

● Dual discharge is available for charging 2 stationary mixers, or 1 stationary mixer and a truck mixer or dry-batch truck.

● 2 to 5 cu. yd. sizes can be arranged for 2 to 4 aggregates, plus 1 or 2 types of cement . . . have fully-automatic, semi-automatic or manual controls. Let your Johnson distributor show you all the production advantages you will get with one of these patented Concentric Batchers in your plant.

Automatic
AIR-RAM OPERATED

Finger-tip panel controls air rams on aggregate and cement fill valves and discharge openings . . . provides fully automatic operation . . . assures extreme accuracy at top batching speeds. Batcher also can be furnished with semi-automatic or manual controls.



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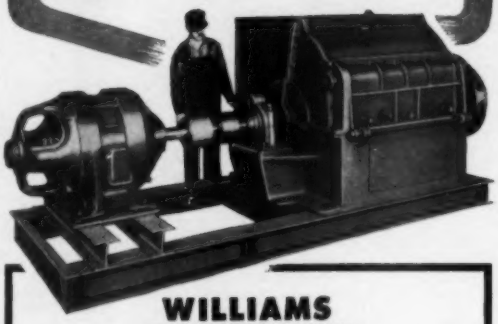

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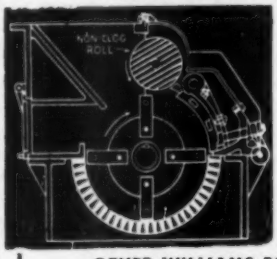

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C-202

BABCOCK & WILCOX

editorial

Hidden Payroll Costs

THERE has been much speculation over the fact that the price of nearly everything has gone up more rapidly in recent years than have the wages paid to labor. Manufacturers and producers have almost unanimously blamed increasing labor costs for price increases. Labor, on the other hand, continues to claim that it is underpaid. The consumer feels more and more that he is in the middle. The Chamber of Commerce of the United States recently shed light on this controversy when it announced the results of an industry labor survey on "hidden payroll" costs. Data from 736 companies showed that such costs in 1951 jumped to an all-time high of $644 annually per employee. For 138 of the companies which had taken part in two previous surveys, these payments had jumped 66 percent in four years—from $440 to $681 per employee. The costs to the 736 companies averaged 18.7 percent of their entire payrolls, or 31.5 cents per payroll hour. The national cost of these fringe benefits was estimated at nearly $25 billion annually.

The Chamber asserts that "In spite of this heavy increase, and in spite of the impact of these fringe benefits on the national economy, the bulk of hidden payroll costs are not reported by the Bureau of Labor Statistics, which is the federal government's primary source of such information." These figures do not, therefore, represent the true cost of doing business or the true level of workers' incomes. It was urged that employers and their organizations fill this gap by providing realistic information. It was also reported that the United States Treasury is now studying fringe benefits as a possible new source of income tax. Unlike cash wages, fringe benefits are not taxed.

"These fringe benefits include social security, unemployment and workmen's compensation, sickness, accident, hospitalization and death benefits; terminal pay; discounts on goods purchased; free meals; pensions; savings and stock purchase plans; paid vacations, holidays, rest and lunch periods; profit-sharing and bonus arrangements.

"Most of these fringe benefits are paid voluntarily by companies. Only such benefits as unemployment and workmen's compensation, old-age and survivors' insurance and off-the-job disability insurance (in effect in four states and on the railroads) are required by law."

Not included in the "hidden payroll" are extra pay for night shift, Sunday work or straight production bonuses, all of which are considered to be part of the regular payroll.

As a result when a worker is hired today or a new wage contract is agreed upon, the wage rates established no longer measure the cost of hiring labor, and the number of hours actually worked no longer measure the number of hours for which the employer must pay. Actually the pay for the time not worked has in effect cut the 40-hour week down to 35 hours.

The survey showed wide variations in fringe benefit payments in different industries. These ranged from less than 5 percent of the payroll in the cases of a warehouse and a cotton mill to over 50 percent in the case of a petroleum refining company. Manufacturing industries as a whole paid 16.4 percent of their total payroll, or $599 annually per employee, in fringe benefits and these ranged from 14.1 percent up to 22.5 percent ($433 to $975 annually) in the various industry classifications. These classifications, used by the government for statistical and other purposes, make it difficult to isolate all or any large part of the nonmetallic minerals industries. The only related classification is Stone, Clay and Glass Products which average 14.2 percent or $477 annually per employee.

The survey states, however, that these variations do not mean that some industries, or companies, are laggard in paying fringe benefits. Often both employer and worker prefer to see wages reflected chiefly or entirely in the pay envelope rather than in fringe benefits. The size of the company also apparently has no effect on the size of these benefits. Contrary to what one might expect payments of the very smallest companies were above average while those of the very largest firms were below average.

Just what the full significance of the above figures is we do not know. They do, however, explain to some extent the apparent discrepancies between the rates of increase in prices and in labor costs. They also show that American workers are being paid more than they think. As a result publication of these figures might conceivably make labor more satisfied with its lot and reduce the number of strikes. If so the Chamber and industry can feel well repaid for the time and effort expended in making this survey.

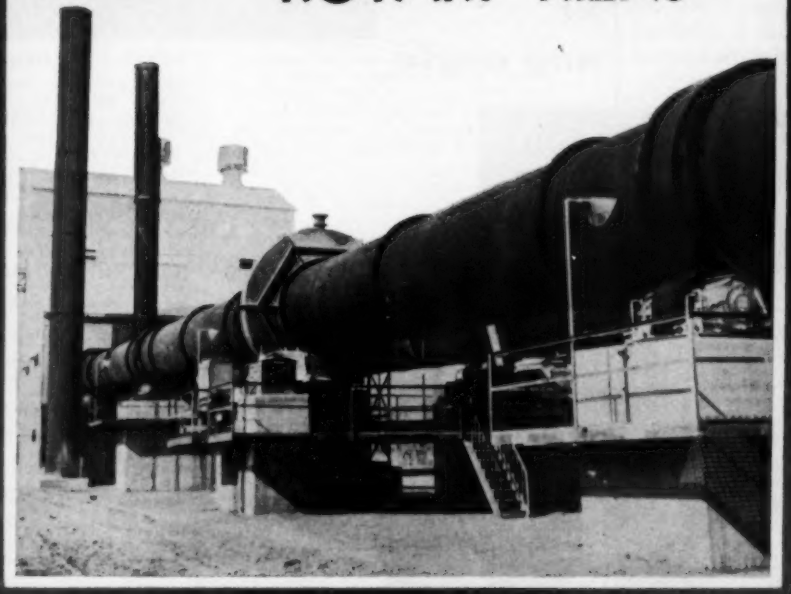
New Cement Map

JUST off the press is the new PIT AND QUARRY map of Portland cement plants in the United States and its possessions, in Canada and in Mexico. On this map are spotted the 183 cement producing plants and 52 distributing plants which supply this basic construction material. The figures for the United States are 153 and 46, for Canada they are 11 and 6, and for Mexico they are 19 and 0. The accompanying list of these plants, arranged alphabetically by state or province, also gives their capacities, the brand names of the different types of cement they produce and whether it is a wet or dry operation. This map is printed in 32- by 40-in. size for legibility and is suitable for mounting on your wall or under your glass desk top. It can also be folded into standard 8- by 10-in. size for filing or for your brief case. A request on your business letterhead will bring your free copy but don't delay as the supply is limited.

Walter E. Trauffer

SMIDTH

ROTARY KILNS



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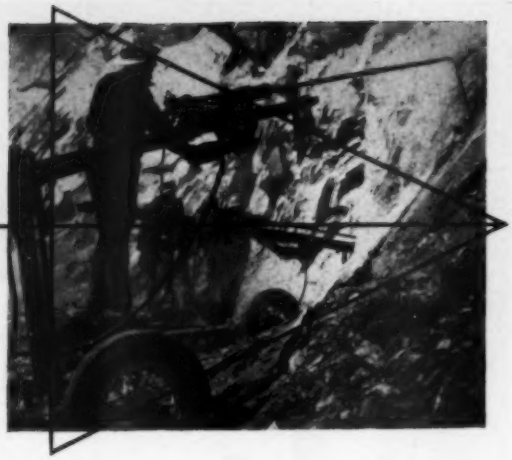

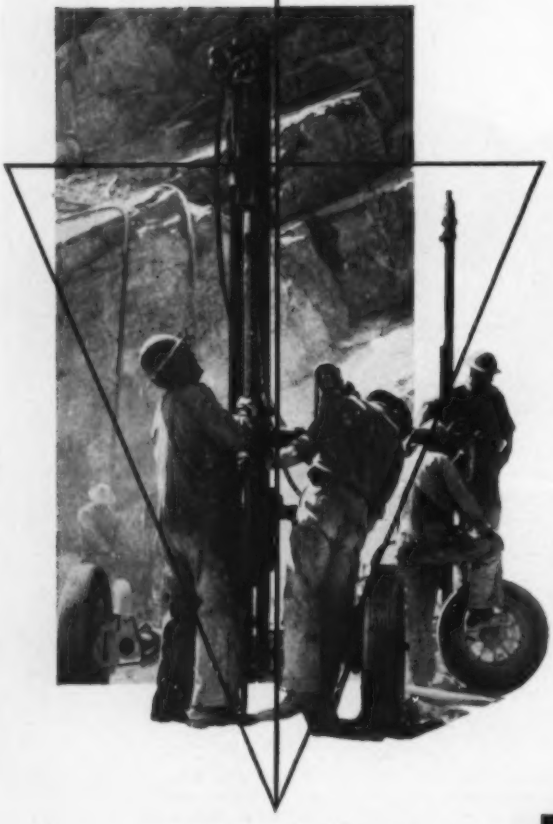

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news of the industry

PIT AND QUARRY

Ralph E. Spears Named P.C.A. District Engineer At Salt Lake City Office

Ralph E. Spears has been appointed district engineer of the Salt Lake City office of the Portland Cement Association, effective January 12, 1953. Mr. Spears succeeds E. B. Wilson, who resigned to enter business for himself in Oklahoma.

Mr. Spears is a graduate of Iowa State College, where he received a Bachelor of Science degree in architectural engineering in 1941. After graduation he was employed for two and one-half years as a structural engineer with the American Bridge Company, Gary, Ind. From 1944 to 1946 he served in the U. S. Navy as a salvage officer in the Pacific theatre. After his release from the Navy, he worked for two years as a structural engineer with Archer, Cooper & Robison, an architectural firm of Kansas City, Mo.

Mr. Spears joined the staff of the Portland Cement Association in 1948 as district structural engineer of its St. Louis office. He is a member of the American Society of Civil Engineers and a registered professional engineer in the state of Missouri.

Lehigh Portland Cement Co. Endows Scholarship Fund

Establishment of a new scholarship fund for students at Lehigh University, Bethlehem, Pa., was announced as the result of a gift of $20,000 from the Lehigh Portland Cement Company, Allentown, Pa. This sum, presented by Joseph S. Young, president of the company, brought the value of scholarships endowed by industry in the last two years at Lehigh to $176,000.

The new fund, which will be administered through the regular university committee on scholarship grants, will finance the Lehigh Portland Cement Company Scholarships. Grants will be made from the income of the fund and will be awarded on the basis of financial need, character, and high scholastic achievement. The number of awards each year will depend on the income available from the fund and the qualifications of the candidates.

The Lehigh Portland Cement Company is the eighteenth firm to establish a scholarship at Lehigh University for needy students. At present 259 Lehigh students are attending classes on scholarship grants valued at approximately $130,000. Applications for scholarships for the 1953-1954 academic year are now being received by the office of admissions from prospective freshmen from all parts of the country.

The W. H. Loomis Talc Corporation, Gouverneur, N. Y., recently announced that their fibrous talc mined in the Adirondack Mountains of northwestern New York is being distributed by Whittaker, Clark & Daniels, Inc., 260 West Broadway, New York 13, N. Y., in Massachusetts, Rhode Island, Connecticut, New Jersey, and southeastern New York for all but the ceramic trade. Distribution for the ceramic industry in this territory is handled by Donald Hagar, Zanesville, Ohio.

$1,000,000 Cement Plant To Be Built in Canada By European Interests

Armand Viau, industrial commissioner of Quebec City, Que., Canada, recently announced that work will begin in a few weeks on the construction of a $1,000,000 cement plant in suburban Villeneuve. The Quebec Investment Brokers' Association was told that the plant will be built by European interests, which were not identified. Output of the plant, when completed next year, is expected to be 250,000 tons a year.

M. Viau stated that a $4,000,000 shipping pier will be built adjacent to the plant on the St. Lawrence River.

Basalt Rock Company, Napa, Calif., has taken over the abandoned plant of the Standard Portland Cement Company and has erected a plant to produce lightweight aggregate from shale.

Coming Events

February 9-11, 1953—Boston. Annual meeting, American Road Builders' Association. Hotel Statler.

February 16-19, 1953 — Los Angeles. 175th general meeting, American Institute of Mining and Metallurgical Engineers. Hotel Statler.

February 17-19, 1953—Boston. 49th annual convention, American Concrete Institute. Statler Hotel.

February 23-26, 1953—San Francisco. 37th annual convention, National Sand and Gravel Association. Hotel Fairmont.

February 23-26, 1953—San Francisco. 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

February 25, 1953—Dallas. Fourth annual convention and meeting, American Concrete Pressure Pipe Association. Baker Hotel.

February 26, 1953—Dallas. Third annual convention and meeting, American Concrete Agricultural Pipe Association. Baker Hotel.

February 26-28, 1953 — Dallas. 45th annual convention and meeting, American Concrete Pipe Association. Baker Hotel.

March 4 and 5, 1953 — Des Moines. Eighth annual convention, Iowa Agricultural Limestone Association, Inc. Savery Hotel.

March 19 and 20, 1953—Indianapolis. Annual meeting and convention, Indiana Mineral Aggregates Association. Claypool Hotel.

June 29-July 3, 1953 — Atlantic City. Annual meeting, American Society for Testing Materials. Chalfonte-Haddon Hall.

Lehigh Cement Co. Starts Operation of 1,400,000 Bbl. Plant at Flagler Beach

The Lehigh Portland Cement Company plant near Flagler Beach, Florida, began operations December 10, 1952. The new plant, which is on a 9,000 acre tract, uses coquina shells as one of the raw materials for the cement. When operating at capacity it is expected to have a 1,400,000 bbl. output annually.

The plant has two kilns 10½ by 380 feet and sufficient equipment to maintain a supply of raw materials and to grind the clinker. Among the equipment is a 10-cu. yd. walking dragline and a 44- by 220-ft. barge where the coquina shells are washed and screened. Storage facilities consist of a 500- by 100-ft. raw materials building and twenty-four 26- by 70-ft. cement storage silos.

3-M Buys Tract for Erection Of Large Research Center

The Minnesota Mining & Manufacturing Company has recently purchased a 1.5-acre tract in St. Paul, Minn., for a long-range building program for research purposes. Plans call for the construction of several major research laboratories in the near future.

The first unit in the multi-million dollar development will be a $3,000,000 laboratory for the company's central research department. Construction of this unit will start this spring, and it is expected to be completed in the latter part of 1954. The new two-story structure will contain approximately 100,000 sq. ft. of laboratory and office space; it will also house the company's technical library.

Tunisian Phosphate Output Shows Large Gains in 1952

Tunisia's output of phosphate rock totaled 1,174,000 metric tons in the first six months of 1952, an increase of about 50% over production of the corresponding period of 1951.

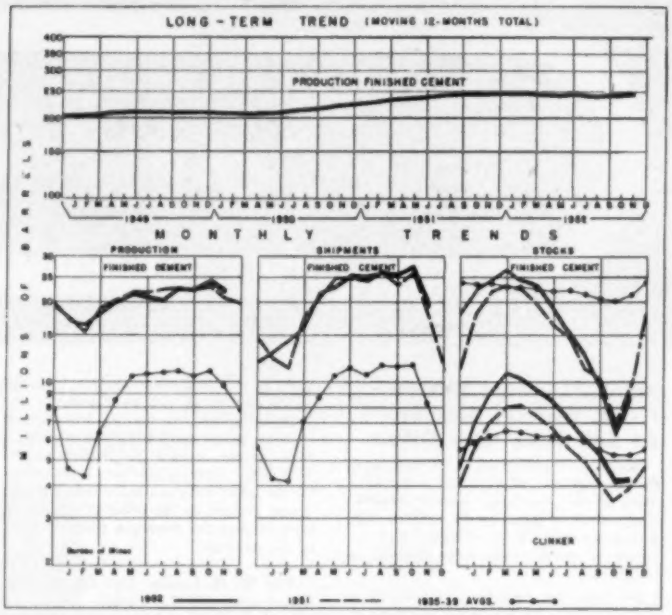
Compagnie des Phosphates et du Chemin de Fer de Gafsa is installing new enriching equipment at its Redeyef mines and conducting tests with an electrostatic and flotation enriching system at Metlaoui. Societe des Phosphates Tunisiens has erected an experimental washing and calcination plant at its Kalsa-Djerda mine.

U. S. Mines Bureau Reports On Fly Ash Disposal Problem

Increased use of forced-draft coal burning equipment in boiler furnaces and recent city air-pollution laws have created a fly ash disposal problem at boiler plants in many parts of the United States, according to a Bureau of Mines information circular. Scientists in private industry and the government are trying to solve the problem by finding new uses for this material.

"Fly ash" is the popular name for the small, solid particles carried out of a furnace by the gaseous products of combustion. A similar substance was used centuries ago in Italy, where natural ash from volcanoes was mixed with lime to make masonry. Nowdays, ash from coal-fired furnaces is used in making brick, tile, and building block, as a binder for building materials, as a filler for asphalt products, and as an abrasive for cleaning metal surfaces. Most promising outlets for it, however, are in the concrete industry, where it is substituted in varying amounts for portland cement, and in the bituminous road industry.

Only a small percentage of the amount of fly ash collected annually at boiler plants is being utilized at present, according to the Bureau's booklet. The circular was prepared by R. E. Morgan, fuel technologist, Fuels Utilization Branch, Bureau of Mines, United States Department of the Interior. A copy of Information Circular 7635 *Utilization of Fly Ash*, may be obtained from the Publications Distribution Section, Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pa.



SUMMARY—Production of finished portland cement in November, 1952, totaled 22,048,000 barrels, as reported to the U.S. Bureau of Mines, representing a 6 percent increase over the November, 1951, figure. Mill shipments totaled 19,771,000 barrels—an increase of 10 percent as compared to shipments in November, 1951, while stocks of 8,823,000 barrels of finished portland cement were 11 percent lower than those of one year ago. Clinker production during the month totaled 22,028,000 barrels—4 percent more than in November, 1951.

PRODUCTION—One hundred and fifty-five (155) plants located in 37 states and Puerto Rico reported a production of 22,048,000 barrels of finished portland cement during the month, as compared to 153 plants, which manufactured 20,737,000 barrels in November, 1951. Clinker production during the month totaled 22,028,000 barrels—4 percent higher than in the preceding November.

SHIPMENTS—Mill shipments of finished portland cement were 10 percent higher than in November, 1951, and totaled 19,771,000 barrels. Shipments were greater in 13 districts and lower in 6 districts, as compared to shipments in November, 1951. The percentage changes range from a 58 percent increase in the Iowa district to a decrease of 18 percent in Puerto Rico. Other districts reporting marked increases in shipments were Illinois, Indiana-Kentucky-Wisconsin, and New York-Maine. Shipments in California were 6 percent higher than in November, 1951.

STOCKS—Mill stocks of 8,823,000 barrels of finished portland cement were reported at the end of November, 1952—11 percent less than on the same date a year ago, while stocks of clinker amounted to 4,168,000 barrels—7 percent greater than on November 30, 1951.

Kaiser Gypsum Announces Appointments on Sales Staff

At a banquet held recently in Contra Costa, Calif., promotions for several Kaiser Gypsum men were announced:

Colin Campbell was named general sales manager; Sidney Smith became general merchandise manager; Richard Northon assumed the post of manager of Kaiser Gypsum's northern California sales territory; and Jim Hague was assigned the southern California district.

Mr. Campbell became a salesman for Kaiser Gypsum in 1948, and took over as chief of the northern California district the following year. In 1950 he moved to a similar assignment in Los Angeles. Mr. Smith managed the firm's export sales in 1947, advanced to the post of product sales manager, and subsequently to that of northern California sales manager in 1951. Mr. Northon and Mr. Hague joined Kaiser Gypsum in 1948 and 1949, respectively.

G. G. Treat, Past President Of Bessemer Limestone, Dies at Youngstown, Ohio

George G. Treat, retired president of the Bessemer Limestone and Cement Company, Youngstown, Ohio, died on December 12, 1952, in that city. Mr. Treat had been affiliated with the company for 50 years when he retired from active service in 1951. On April 2 of that year more than 700 employees and guests of the firm attended a dinner honoring Mr. Treat. Upon this occasion the honored guest was presented with a diamond ring by the directors and officers of the concern.

Mr. Treat began his association with the firm, formerly known as the Bessemer

George G. Treat

Limestone Company, at Lowellville, Ohio, on March 27, 1901. He was engaged as a shipping clerk, and in the ensuing years served as bookkeeper, purchasing agent, general office manager, auditor, paymaster, and in other posts, until he became president in 1946.

Minerals Separation Buys Producer of Fuller's Earth

Minerals Separation North American Corporation, New York, which licenses industrial firms to use phosphate and potash beneficiation processes, has acquired the operating assets formerly owned by Attapulgus Clay Company, a large producer of fuller's earth located at Attapulgus, Ga. In addition to acquiring the firm, Minerals Separation is asking its stockholders to authorize a change of the company's name to the Attapulgus Minerals and Chemical Company.

The clay company's assets also included a 50 percent interest in the capital stock of the Porcel Corporation, whose plant in Arkansas is engaged in activating bauxites for absorbent and chemical uses.

David Lilienthal, president of Minerals Separation, will become chairman of the new company, and L. R. Streander, former president of Attapulgus, will become its president.

● A 30-ton payload of kingsize, shot-granite rock is dumped on the fill at the Folsom Dam Project by an Athey PD-20 Wagon. The dam, on the American River in California, is being built by the Corps of Engineers as a means of flood control, and to create a water supply and hydro-electric power. The project was started in 1948, and with modern earthmoving equipment doing the work, it will be ready for service in record time.

S. W. Portland Cement Co. Adds 11th Dust Collector Unit

The Southwestern Portland Cement Company, El Paso, Tex., has recently completed the installation of an eleventh unit in its large-scale dust collecting program. The program began in 1929 by installation of a $90,000 electrical precipitator. Additional units were added in 1936, 1948, 1950, 1951, and two in 1952, bringing the total cost of the dust collecting units to $275,000. The two latest units were multiple-cyclone type collectors, costing $90,000 and $75,000 each.

The purpose of the dust collecting program is twofold — first to prevent the wasting of the valuable cement dust, and second to help alleviate El Paso's serious dust and smoke problem.

Cover Picture....

● Pictured on our cover this month is an air view of the Carolina Giant Cement Company's plant at Harleyville, S.C., showing recent additions which boosted capacity 1,000,000 barrels annually. Included in the expansion were a new crushing station in the quarry, a new raw department, a new clay-processing department, enlarged slurry holding and blending tank capacity, a new compressor house building, additional clinker storage capacity, a new 700-ton gypsum silo, a 1,000,000-gal. fuel oil tank and a pumping station, and an underground electrical distribution system. The new installations are described in an article beginning on page 78 of this issue.

Reprint Covers Phosphoric Acid Production by Wet Process

The Dorr Company announces the immediate availability of a new technical reprint "The Manufacture of Phosphoric Acid by the Wet Process," by W. C. Weber. It has been reprinted by courtesy of Reinhold Publishing Corp. from the book "Phosphoric Acid, Phosphates and Phosphatic Fertilizers," by William H. Waggaman, Senior Mineral Technologist, Bureau of Mines, U. S. Department of the Interior. An American Chemical Society Monograph, the book is the most complete treatise yet published in its field and is destined to become the leading source for information on all phases of the chemistry, technology and uses of phosphorus.

The chapter on wet-process phosphoric, now in reprint form, consists of 36 pages of factual information on all phases of phosphoric acid manufacture by the sulphuric acid or wet process. The chemistry of strong acid production is discussed and major manufacturing developments are traced down to the present day. Twelve pages are devoted to equipment (crushing, grinding, agitation, filtration, etc.) and describe the latest types now being employed in the newer plants. Sections are also included on by-products, materials of construction, costs, etc.

Copies are available from The Dorr Company, Barry Place, Stamford, Conn.

A research center is being planned by National Gypsum Company to be built in Tonawanda, N. Y. The center is expected to cost about $1,000,000 and will house research and development projects including pilot plant operations.

Wright, Frolich, Sunderland Win Executive Promotions On Ash Grove Lime Staff

Three executives of the Ash Grove Lime & Portland Cement Company, Kansas City, Mo., were recently elected to higher corporate offices by the company's board of directors. Promoted, effective

Purd B. Wright

January 1, are the following: Purd B. Wright Jr., from general sales manager to vice-president and general sales manager; A. K. Frolich, from chief engineer to vice-president and chief engineer; Robert Sunderland, from assistant secretary and credit manager to secretary and assistant treasurer.

Purd B. Wright Jr. started his career in the cement business more than 20 years ago. After his graduation from Washington University, St. Louis, Mo., he was employed by the engineering firm of Herington, Howard and Ash, and the Burns and McDonnell Engineering Co.

A. K. Frolich started with the Ash Grove Company as a structural engineer in 1924 and supervised the construction of the company's plant in Louisville, Nebr., in 1927. He was superintendent of that plant until 1945, when he was made chief engineer, with headquarters in Kansas City. Mr. Frolich studied in Ilmenau, Germany, and was associated with cement production in Norway before coming to the United States.

Mr. Sunderland was employed by the Ash Grove Company following his graduation from Washington University, St. Louis, in 1947. He served four years in the U. S. Army during and following World War II.

The Ash Grove Company operates cement plants in Louisville, Nebraska, and Chanute, Kansas; lime plants in Springfield and Galloway, Missouri.

Robert Sunderland

National Lime Association Sets Operating Meet in South

For the first time in the 50-year history of the National Lime Association there will be an operating meeting of national scope in the "deep South" in 1953. The affair is scheduled for October 12 to 14 at the Tutwiler Hotel in Birmingham, Ala.

This should be an outstanding meeting, since Shelby County, Ala., only a few miles south of Birmingham, is the fourth-largest lime-producing area in the United States. Plants in this section feature modern large-capacity vertical kilns of various types and also a new, completely modern rotary kiln lime operation. A tour of local plants during the meeting should prove an interesting experience to those attending.

In charge as planners are M. A. Rikard (Southern Cement Co., Birmingham), program chairman, and F. J. Collins (Kelley Island Lime & Transport Co., Cleveland, Ohio), operating division chairman.

A. K. Frolich

First Year's Production At Caribbean Cement Co. Hits 600,000-Bbl. Mark

The Caribbean Cement Company Limited whose new 600,000 barrel-per-year plant at Kingston, Jamaica, has been in operation only since the beginning of February, 1952, has established what may very well be a record first year result.* Under the chairmanship of Sir William Stephenson, internationally-known Canadian industrialist, Jamaica's new cement company has, in its first year of operation, declared a 6 percent cash dividend on its ordinary shares (common stock), plus a 25 percent stock dividend, besides redeeming more than $200,000 worth of debentures.

Organized by American and Canadian interests, with capital and other assistance from Great Britain, Jamaica, and Bermuda, the Caribbean Cement Company is a truly international venture. The American-Canadian arm of the company is Cement and General Development Corporation of New York. A spokesman for Cement and General Development Corporation in New York states that the Jamaica company's net profit available for distribution will exceed $400,000 for its initial eleven months of operation.

According to Cement and General Development Corporation, the first year operating record achived by the Jamaica factory results mainly from the extremely favorable location of the plant, which is close to all of its principal raw materials, its fuel, power and its principal markets.

A further factor which tends to make the Caribbean Cement Company a more economic production unit than most plants of its size was its relatively low capital cost, resulting in comparatively low capital charges. The final cost of the Jamaica factory, including diesel-electric power plant, deep water wharf and working capital was only $3,200,000, which works out at about $5.53 per annual barrel of production. The capital cost of equivalent units in the United States and Canada currently ranges from $7 to $12 per annual barrel.

*Reported in PIT AND QUARRY, April, 1952, Page 79.

Bemis Bro. Bag Co. Issues Fifth Educational Comic Book

An educational comic book showing that productivity is the key to America's prosperity is announced as the fifth in a series of similar booklets sponsored by Bemis Bro. Bag Co., St. Louis, Mo., in the interest of better economic education in America.

"A Better Life for You" is a standard size comic book in color, and tells the story of how machines put more men to work, how more production per man per hour means lower costs, and how better productivity makes a better life for everyone through lower prices, higher wages, shorter hours, more profits, and more jobs.

Sample comic books and price lists may be obtained from either Harvey Publications, Inc., Information Comics Division, New York 23, N. Y., or Bemis Bro. Bag Co., 408 Pine Street, St. Louis 2, Mo.

'52 Construction Contracts Topped All Records for Area East of Rockies

Construction contract awards in the 37 states east of the Rockies in 1952 broke all existing building records, topping the previous all-time high set in 1951, it was announced by F. W. Dodge Corporation, construction news and marketing specialists.

The 1952 total for the 37 states was $16,774,936,000 or 6 percent greater than 1951's $15,751,131,000. Contributing significantly to the over-all total was the year end heavy engineering figure of $3,412,368,000 which was up 25 per cent over 1951's comparative total.

Residential awards for 1952 totaled $6,667,504,000 or 7 percent higher than in 1951. Nonresidential awards were $6,695,064,000, down 2 percent from 1951.

In December, total construction awards were $1,467,384,000 or 18 percent more than November and 19 percent more than December 1951. Nonresidential awards were $709,100,000, up 54 percent over November and up 20 percent over December 1951. Residential at $438,580,000 was 17 percent less than November but 27 percent more than December 1951. Heavy engineering (public works and utilities) at $319,704,000 was 23 percent more than November and 8 percent above December 1951.

Peerless Cement Corp. Elects Three Vice-Presidents

The Peerless Cement Corporation, Detroit and Port Huron, Mich., announced the election of three new vice-presidents.

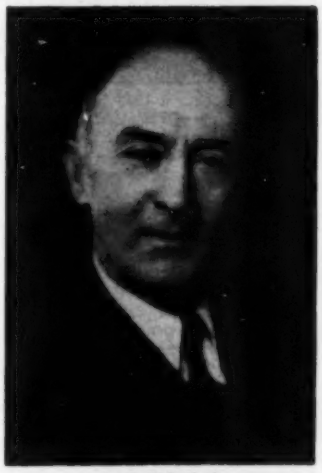
Elevated to the post of vice-president and operating manager is Adelbert C. Eichenlaub who started with the company as assistant chief chemist in 1929.

H. Lyle Henson has been advanced from chief engineer to the office of vice-president and chief engineer. Mr. Henson has been with the company since 1936 when he started as a service engineer in the Sales Department.

Merko M. Sepic is now vice-president and secretary-treasurer of the corporation. Previously he held the office of secretary treasurer, having started with Peerless in 1928 as an accountant.

The company also announced the resignation of Webster L. Kaiser, who held the post of vice-president in charge of manufacturing. Mr. Kaiser will continue to serve the company as special consultant.

The American Sand and Material Company, Turner, Kan., recently completed a new sand and gravel plant on the Kaw river about 1,000 ft. from the older one. The new plant has facilities for producing 1,500 tons of sand and gravel daily. Raw material is pumped from the river and classified and graded in what is said to be one of the most modern operations in the area.



A. C. Eichenlaub

H. Lyle Henson

Merko M. Sepic

Webster L. Kaiser

Safety Council Offers Two Training Courses In Accident Prevention

The 1953 sessions of the National Safety Council's Safety Training Institute will open with a five-day course on the "Fundamentals of Industrial Safety", to be held Feb. 16-20.

This basic course, designed to help men presently engaged in industrial accident prevention gain a better understanding of occupational safety principles and methods, will be offered six times during the year.

Among the subjects included in classroom work are accident records, safety inspections, workmen's compensation, industrial health problems, machine guarding, electrical hazards, fire prevention, personal protective equipment, personal factors and supervision. Instructors for the course are specialists drawn from the Council's staff.

For safety personnel interested in more advanced work, a one-week course on "Safety Management Techniques" is offered by the Safety Training Institute. Assuming a knowledge of the fundamentals of accident prevention, the course stresses those managerial techniques required of top-notch safety personnel. Some of the topics included are psychology, leadership, human relations, public speaking, writing, conference leading as these subjects apply to the professional safety man.

The next advanced course on "Safety Management Techniques" will be given April 13-17. In addition to the February meeting, the basic course will be offered March 9-13, May 11-15, June 8-12, November 9-13 and December 7-11.

A company or organization need not be a member of the Council in order to enroll a representative. Further information may be obtained by writing the National Safety Council, 425 North Michigan Ave., Chicago 11, Ill.

Heart Attack Is Fatal To R. Warren, Leader In Pennsylvania Associations

Ray Warren, executive secretary and engineering representative of the Western Pennsylvania Sand and Gravel Association from its formation in 1929, died of a heart attack on December 26, 1952.

In addition to his duties with the sand-and-gravel association, he held a similar post with the Ready Mixed Concrete Association of Metropolitan Pittsburgh from 1933 until his death. He also served as secretary-treasurer of the Pennsylvania Sand and Gravel Producers' Association for ten years. From 1915 to 1950 he was an associate member of the American Society of Civil Engineers, and became a life member in 1950. He was also affiliated with the American Concrete Institute.

For several years Mr. Warren was township engineer of the Pennsylvania Department of Highways.

C. F. Hood Becomes President Of United States Steel Co.

Clifford F. Hood was elected president of the United States Steel Company to succeed Benjamin F. Fairless, who has been chairman of the board and president.

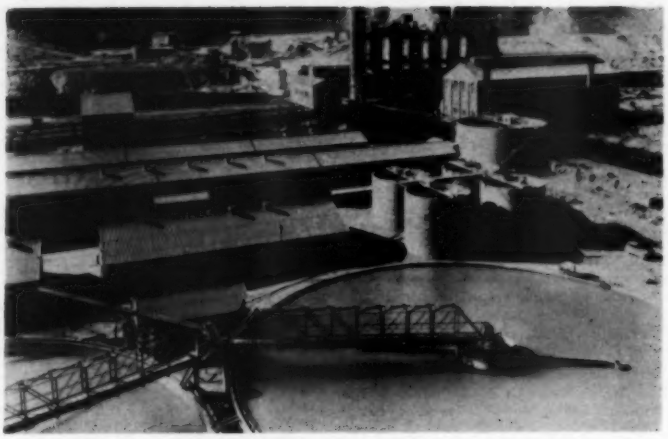
Mr. Hood had been executive vice-president, operations, a post he had filled since the merging of Carnegie-Illinois Steel Corporation with U. S. Steel. He was formerly president of Carnegie-Illinois.

G. C. Holton Named Manager Of Cyanamid Explosives Dept.

George C. Holton has been appointed manager of the Explosives Department of the American Cyanamid Company, Bound Brook, N. J. He was for many years assistant manager under R. E. Wiley, who will continue to act as consultant on matters pertaining to explosives.

Mr. Holton gained his early business experience in the coal and steel industry. In 1930 he joined the sales department of General Explosives Corporation at Latrobe, Pa., and in 1933 became vice-president in charge of sales. After the purchase of that company by the American Cyanamid Company, in September 1933, he became sales manager of the General Explosives Division of Cyanamid, and subsequently assistant manager of Cyanamid Explosives Department.

George C. Holton



• A scene at the wet-process cement plant of the Anglo-Alpha Cement Company, which is located near the famous Kimberly diamond fields in the Union of South Africa. In the foreground are two 160-ft. diameter Dorr thickeners for dewatering the wet ground slurry. In the raw grinding section two 12-ft. wide Dorr FX classifiers operate in closed circuit with ball mills.

October Lime Report Shows Highest Sales During 1952

In October 1952, domestic sales of 750,457 tons of open-market lime, the highest during the year, were 5 percent more than in the previous month, according to reports by producers to the Bureau of Mines, United States Department of the Interior. Building, refractory, chemical and other industrial uses each increased by 5 or 6 percent over the previous month, whereas an 18 percent decrease was noted for agricultural use.

The table below shows sales by types and major uses.

Cowell Cement Plant Sold For $700,000 at Auction

The Cowell Cement Company plant at Cowell, Calif., which has been shut down since 1946, was auctioned off piece-by-piece when no purchaser for the entire property could be found. Proceeds of the sale amounted to $500,000 for machinery and equipment and $200,000 for buildings. The original value of the plant was about $12,000,000.

The town of Cowell, 2,000 acres and 52 homes, which are company owned, were not included in the sale. Exhaustion of limestone deposits was the reason for closing the operation.

The Kentucky-Virginia Stone Company, Middlesboro, Ky., has purchased the Evans Stone Company, Pineville. New equipment is being installed at the Evans quarry to increase production and expand the number of the sizes of crushed stone being made.

Table 1.—Lime Sold by Producers[1] in the United States, January-September, 1952, October, 1951, and October 1952, by Types and Major Uses, in Short Tons

	January-September, 1952	September 1952	October 1952	October 1951
By types:				
Quicklime	4,294,157	546,068	582,078	553,609
Hydrated lime	1,403,946	166,457	168,379	165,142
Total lime[2]	5,668,103	712,525	750,457	718,751
By uses:				
Agricultural:				
Quicklime	46,961	8,336	7,424	7,418
Hydrated lime	162,340	16,867	13,117	13,684
Total	209,301	25,203	20,541	21,102
Building:				
Quicklime	159,836	18,587	19,868	20,960
Hydrated lime	707,264	85,732	89,473	88,465
Total	867,100	104,319	109,341	109,425
Chemical and other industrial:				
Quicklime	2,733,948	326,795	350,182	344,943
Hydrated lime	534,342	63,858	65,789	62,993
Total	3,268,290	390,653	415,971	407,936
Refractory (dead-burned dolomite)	1,323,412	192,350	204,604	180,288

[1]Also includes a small quantity of captive tonnage (6-7 percent of the total reported herein) to maintain comparability with the annual lime statistics.
[2]Approximately 60 percent of lime produced is high-calcium and 40 percent high-magnesium.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE February, 1923, issue of PIT AND QUARRY was essentially a convention reports number, containing complete staff reports on the annual conventions of the National Crushed Stone Association, the National Sand and Gravel Association and the National Agstone Association. Also reported were the conventions of the Indiana Sand and Gravel Producers' Association, the Indiana Crushed Stone Association and the American Road Builders' Assn.

The seventh annual convention of the National Sand and Gravel Assn. was held January 24, 25 and 26 at the Raleigh Hotel, Washington, D. C. One of the important subjects discussed was the valuation of deposits. A government representative explained how to evaluate different types of deposits. Depletion figures allowed were based on the selling price and averaged about 2 percent. Limestone was allowed 1 cent per ton, sand and gravel 1 to 1½ cents, glass sand about 6 cents and molding sand from 6 to 10 cents per ton.

Other subjects discussed were: expansion of association activities, the growing menace of wayside pits, car supply prospects, the continuation of the Railway Labor Board, more power for the states, new uses for gravel, etc.

Herbert Hoover, then Secretary of Commerce, was the featured speaker and he pointed out the interrelationship between economic conditions here and abroad. He also told of the efforts of the Department of Commerce to build up a spirit of cooperation between the department and the various trade associations and to increase the value of its work to business. Mr. Hoover then answered numerous questions on matters falling under his jurisdiction.

At this meeting Alex Dann was re-elected president. Others elected were: E. G. Sutton, vice president; John Prince, secretary-treasurer.

The convention of the National Crushed Stone Assn. in Chicago was one of the best yet held. A wide variety of subjects was discussed and the speakers were of the highest caliber. Among the many subjects were: the transportation situation; quality and suitability of materials; importance of knowledge of financial problems; proposed expansion of research; legal aspect of associations; engineering aspect of quarry investigations; the labor and railroad situations; blasting inside city limits; cost accounting, merchandising, accident prevention, and the various phases of plant operation.

The following officers were elected: F. W. Schmidt, president; W. H. Hoagland, first vice president; W. L. Sporborg, second vice president.

The National Agstone Assn. met in Chicago during the crushed stone convention. Many subjects were discussed but the most important one seemed to be the still familiar fine vs. coarse grinding controversy. The evidence seemed to favor fine grinding. At this meeting E. M. Lamkin was re-elected president and W. H. Margraf was elected treasurer.

At the convention of the American Road Builders' Assn. one of the subjects discussed was the use of local materials in construction. It was argued that such materials, though not meeting specifications for high-type roads, would make it possible to build roads in localities where the cost of good aggregates was prohibitive.

The eighth annual convention of the Indiana Sand and Gravel Producers' Assn. was held in Indianapolis January 10 and 11. M. A. Neville, president, in his opening address expressed the prevailing feeling of optimism about the future. Business was good in 1922 and all indications pointed to further improvement in 1923. Nearly all the talks and discussions were devoted to ways and means of getting more business, finding new outlets for sand and gravel and improving the product and service to customers. New officers elected were: J. A. Shearer, president; and L. R. Witty, secretary-treasurer.

The convention of the Indiana Crushed Stone Assn. was held January 16 at the LaSalle Hotel, Chicago. Most of the discussion was about current and proposed activities of the Association. The new officers elected were: C. E. Greely, president; B. L. McNulty, vice-president; V. G. Pogue, treasurer; Fred W. Connell, secretary.

Several new plants were described in this issue including: the silica sand washing and crushing plant of the Ebensburg Sand & Stone Co., Ebensburg, Pa.; the whiting and fertilizer plant of the Krippendorf-Tuttle White Cliffs Products Co., located in the southwest corner of Arkansas; and the poultry grit plant of the California Rock Products Co. near Los Angeles, Calif.

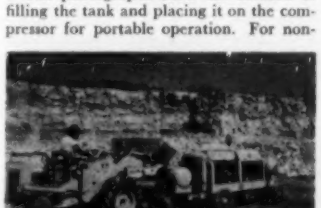
Cement plants were in the news with a proposed new 2,000-bbl. plant by the Linwood Stone & Cement Co. near Davenport, Iowa; a proposed new plant in Ohio by the Ohio Portland Cement Co. and a proposed new plant by the Arizona Portland Cement Co. of Phoenix, Ariz. The Southwestern Portland Cement Co. announced plans to increase the capacity of its plant to 5,000 bbl. daily. Expansion programs were also announced by the Acme Cement Corp., Catskill, N. Y., and the Huron Portland Cement Co., Detroit, Mich.

Propane Powers Compressor In Wisconsin Lime Quarry

An article in the December, 1952, issue of PIT AND QUARRY, pp. 76-7, told of the use of propane gas for firing kilns, etc., at the Rockwell Lime Company, Manitowoc, Wis. The Le Roi 315 Compressor which supplies air for the drills in the quarry has also been modified to utilize propane gas as fuel.

● Filling the auxiliary tank with propane.

The photographs show the method of filling the tank and placing it on the compressor for portable operation. For non-portable applications the fuel tank is simply placed on the ground adjacent to the compressor.



● A front-end loader places the auxiliary tank on the compressor.

Two 22-in. diameter by 44-in. tanks make refueling a simple operation. The spare tank can be filled at the main tanks in approximately 5 minutes and replacement of tanks requires 10-15 minutes.

One tank when filled to 90 percent of capacity provides enough fuel for twelve 40-minute hours of operation or a drilling capacity of approximately 288 ft. of 2½ in. hole.

Campbells Enlarge Holdings In Clinchfield Corporation

Officials of the Clinchfield Sand & Feldspar Corporation, Baltimore, Md., have announced that all of the interest of Henry N. Hanna, president, in that company has been purchased by Harry T. Campbell Sons' Corporation of Towson, Md., effective January 1, 1953. The Campbell Corporation, a successful and progressive organization in allied fields, had previously held a substantial interest in the Clinchfield Company.

Upon Mr. Hanna's retirement, Bruce S. Campbell, president of Harry T. Campbell Sons' Corporation, was elected president of Clinchfield. H. Guy Campbell was elected vice-president, and Willard Hoffman was re-elected treasurer. Clinchfield offices have been moved to 413 Washington Avenue, Towson, Baltimore 4, Md.

The annual meeting and convention of the Indiana Mineral Aggregates Association will be held on March 19 and 20 at the Claypool Hotel, Indianapolis, according to an announcement released by Ralph Simpson, engineer-director of the organization.

Worker's Safety Discussed At Industrial Health Meeting

APPROXIMATELY 600 outstanding leaders of the industries and the professions from all sections of the nation were in attendance at the 17th annual meeting of Industrial Hygiene Foundation, which was held at Mellon Institute of Industrial Research at Pittsburgh on November 19 and 20.

The general meeting sessions were opened with an address of welcome by Dr. E. R. Weidlein, president of Mellon Institute. The next speaker, Andrew Fletcher, board chairman of the Industrial Hygiene Foundation and president of the St. Joseph Lead Company, delivered an address entitled *Foundation Facts,* in which he reviewed the activities of the Foundation for 1952. He spoke of the growth of the organization as a unified force in accomplishing the goals of the industrial health program.

The keynote address, *The Greater Industrial Health,* was given by L. R. Boulware, vice-president, Employee and Plant Community Relations Services Division, General Electric Company. Mr. Boulware presented a highly significant talk on the greatness of the free enterprise system as practiced in this country, and stressed the obligations of management, labor, and the customer. The risks inherent in collectivism, socialism, and big government, as they affect the freedom of our lives, our standard of living, and general well-being were discussed. Mr. Boulware cited the tremendous importance of industry's contribution, through organizations such as Industrial Hygiene Foundation, to the improvement of the bodily health of the workers. Contributions to the community, through this development, have come about because of the improvement in bodily health, and the attendant effects upon the emotional and mental well-being of its citizens.

L. R. Boulware, vice-president, Employee and Plant Community Relations Services Division, General Electric Company, who gave the keynote address.

W. C. L. Hemeon, engineering director, Industrial Hygiene Foundation, one of the speakers at the meeting.

G. T. Fonda, vice-president, Industrial Relations, Weirton Steel Company, presided over the panel discussion on *Contributions to Worker Health.* The members of the panel were Dr. H. W. Lawrence, Procter and Gamble Company; W. R. Bradley, American Cyanamid Company; W. G. Hazard, Owens-Illinois Glass Company; and T. C. Waters of Mulliken, Stockbridge and Waters. These members discussed the medical, chemical, engineering, and legal aspects of industrial health, and outlined their respective responsibilities for the protection of the health of industrial workers.

George Mixter, vice-president, U.S. Smelting, Refining and Mining Company, presided at the closing session of the meeting. Talks were given by S. L. Hooper, Remington Rand, Inc., on *Noise, Its Effects and Cost;* W. C. L. Hemeon, engineering director, Industrial Hygiene Foundation, on *Review of Latest Developments in Outdoor Air Pollution;* and Dr. Waldo E. Fisher, professor of industrial relations, University of Pennsylvania, on *Management Education and Worker Health.*

The conference on chemistry and toxicology, sponsored by the Industrial Hygiene Foundation's advisory committee on chemistry and toxicology, was held on Wednesday, November 19. Dr. H. F. Smyth Jr. and Dr. H. H. Schrenk jointly presided.

Dr. William P. Yant, research director of Mine Safety Appliances Company, introduced the subject of fire gases and their effects by outlining the types of gases that are incidental to the burning of various kinds of material in industrial plants. He emphasized that the greatest hazards aside from burns and excessive heat are the lack of oxygen and the occurrence of carbon monoxide. Other hazards are carbon dioxide and various irritating gases, such as ammonia and hydrogen sulphide.

L. B. Berger, chief of the Health Branch of the United States Bureau of Mines, then discussed the products of decomposition of some of the newer plastics used for instrument panels, for electric cable insulation, and in conveyor belts in mines. Low-temperature distillation and products of partial combustion of the plastic

(*Continued on page* 65.)

Theodore F. Hatch, research adviser, Industrial Hygiene Foundation, and professor of industrial health engineering, University of Pittsburgh.

Pumice Processed for Soap At Two J. H. Rhodes Plants

The new pumice processing plant of James H. Rhodes and Company at Santa Fe, N.M.

another ON THE SPOT report

DETERGENTS may come and soap flakes may go, but the familiar bar of Lava Soap, having stood the test of time, continues in demand as a first-class cleanser for grimy hands.

A basic ingredient of the soap for the half-century or more it has been on the market is finely-ground pumice, and practically all of this volcanic material is processed for Lever Brothers by James H. Rhodes & Company at two plants, one on Long Island, the other at Santa Fe, N. M. The eastern plant imports pumice from Italy and other foreign countries; the New Mexico plant processes a local volcanic product.

The new Santa Fe plant, housed in a corrugated-steel building, went into operation in 1951. The pumice is purchased and trucked to the plant from a deposit 27 miles distant. As received, the material has a top size of about ¼ in. and contains an average of 20 percent moisture. Processing involves thorough drying in rotary driers, grinding in both open and closed circuit with hammer mills, screening, and bagging.

The critical stage of the operation is in the sizing, since none of the finished material is coarser than No. 10 mesh, the eleven sizes produced ranging in fineness downward to minus No. 325. Various methods of screening and classification were tried before the present system of classifying the fine, abrasive material was adopted. This system consists of a battery of six Sweco separators, each being a 48-in. diameter enclosed triple-deck unit.

The separators are circular screening units employing a compound gyratory motion to effect clean, accurate separation of the fine pumice particles. Material is fed at the center of each deck and discharged at the periphery, throughs returning *via* a cone which feeds the next lower circular deck, again at the center of the screening plane. Finished pumice is bagged in straight sizes or blended by weight as specified.

By HARRY F. UTLEY

The Rhodes company also owns an extensive deposit of high-grade diatomaceous earth near Santa Fe, and plans are now in progress for an addition to the existing plant to process this material also. A rotary kiln will be installed to calcine the diatomite.

Henry A. Hukill is superintendent of the operations at Santa Fe. Main offices of James H. Rhodes & Co. are in Chicago.

Two of the six circular gyratory screening units which classify the pumice into eleven sizes ranging from No. 10 to No. 325 mesh.

Industrial Hygiene

(*From page* 64.)

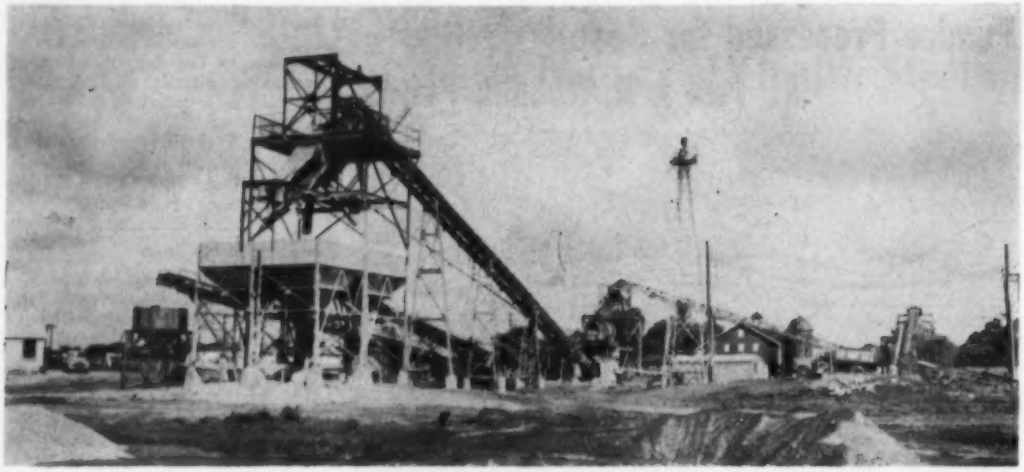
materials are usually expected to occur in the atmosphere in the vicinity of fires. The greatest hazard from the burning of plastics on a quantitative basis is carbon monoxide.

H. H. Fawcett of General Electric's research laboratory emphasized the importance of proper storage and labeling of hazardous materials used in laboratories and pilot plants. He also told of the need for training personnel in all phases of fire prevention, fire fighting, and first aid.

W. R. Bradley, chief industrial hygienist, American Cyanamid Co., a member of the panel on worker health.

Professor T. F. Hatch, research advisor of Industrial Hygiene Foundation and professor of industrial health engineering at the Graduate School of Public Health, University of Pittsburgh, led a very stimulating discussion on present-day appraisal of dust hazards. He pointed out some of the errors that have been made in attempting to measure the potential health-injuring capacity of industrial dusts and in efforts to diagnose illness in workers. Experience in this country, in South Africa, and in England led to the conclusion that more fundamental research is needed

(*Continued on page* 76.)



A general view of the Fredericktown Sand and Gravel Company's plant, with the final screening station and truck-loading bins in the left foreground. Note the airplane guide tower used for floodlighting during night operation.

New Ohio Sand and Gravel Plant Uses Two Methods of Loading to Open Up Deposit

another ON THE SPOT report

ONE of the most interesting new sand and gravel plants of 1952 is that of the Fredericktown Sand & Gravel Company at Fredericktown, Ohio. This 200-t.p.h. operation was built on the same 282-acre property

By WALTER E. TRAUFFER

as the plant it replaced but on the opposite side of a creek which had restricted the expansion of operations from the other side. This plant is also unusually flexible, so that it can be adjusted easily to the changing types of material which must be processed in working back from the old pit to the eventual face which will provide a more consistent supply of material.

In order to appreciate the problems involved in this operation a brief knowledge of the background is essential. The deposit is at the north edge of Fredericktown, a community of about 1,300 people, and is divided by Kokosing Creek. In 1936 the Mount Vernon Sand and Gravel Co. opened the deposit on the south side of the creek. The plant and property later were sold to the France Stone Co. and then to the firm of Rice and Clapsaddle. On June 1, 1952, the present owners took over; and realizing that the deposit on the south side of the creek was nearly depleted, they began making plans for a new plant on the north side. Operation of the old plant was discontinued shortly before the new plant went into operation on July 1, 1952.

The deposit is of glacial origin and has been spread out in the creek flood plain by stream action. Sound Grade A material is known to exist to a considerable depth, that near the surface containing some sandstone, but below 25 ft. it is almost entirely granite. Tests down to 75 ft. have shown no change in the quality of the material, which averages 40 percent sand, with less than ½ of 1 percent over 10 in. in size. The overburden averages 5 ft. in depth, and enough was removed by contract with 12-cu. yd. LeTourneau scrapers during last winter for the first year's operation. During this winter a dragline and trucks are being used for this purpose.

Beginning at the edge of the old pond south of the creek a dragline has been working back toward the plant by digging from the bank. When this was worked back far enough a Sauerman slackline cableway excavator system, which had been brought from a plant in New York state, was put into operation. This system and the dragline will be used alternately or together, as conditions require, until a decision is made on the final method to be used. It is thought that by next summer a suction dredge or a large crawler dragline may be installed, in which case the cableway excavator will be kept for supplementary or emergency use.

The Sauerman cableway excavator system has a 100-ft. tower and a 930-ft. carrying cable which enables it to dig to a distance of 850 ft. and to a depth of 50 ft. The tail end of the line is connected to a cable between two deadmen 380 ft. apart, and a sheave is used to move the line manually. The 2-cu. yd. Sauerman bucket is operated by a Thomas hoist driven by a 150-hp. General Electric motor which gives it a 200-f.p.m. speed for loading and 480-f.p.m. for carrying. The carrying cable is 1¾ in., the pull line ⅞ in.

Washing sprays, rotary scrubber and soft stone eliminator insure quality product

The slackline cableway excavator system, with the 100-ft. tower and the 2-cu. yd. bucket discharging to the stockpile.

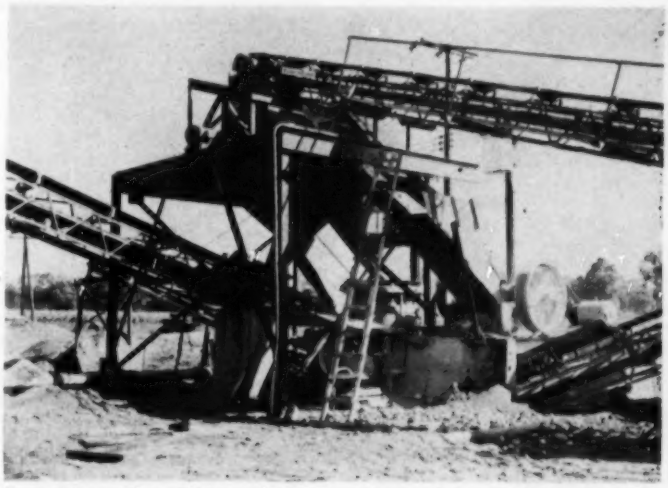
and the load line ¾ in., all American Steel & Wire Co. regular lay wire rope.

The bucket discharges the material to a 14,000-cu. yd. stockpile over a reclaiming tunnel. It is believed that this reserve will carry the plant over the winter months when digging is impossible. The tunnel of 10-gauge Armco corrugated metal is 8 ft. in diameter and 130 ft. long and is cross-braced for its entire length. Material is drawn from storage through two gates, each with a 3- by 4-ft. Telsmith reciprocating plate feeder. The 127-ft. Barber-Greene reclaiming belt conveyor is inclined outside the tunnel to discharge over a 10-in. rail grizzly into a 15-cu. yd. hopper. Temporarily while opening up the deposit this hopper is also being fed by truck from an earthen ramp in order to keep the plant operating at capacity. A Northwest 101 gasoline dragline with a 60-ft. boom and a 1½-cu. yd. bucket is loading five 2-cu. yd. dump trucks. If it is decided to use dragline excavation as the major source of material, a larger machine with a 90-ft. boom will be installed and 12-cu. yd. Euclid trucks will replace the dump trucks.

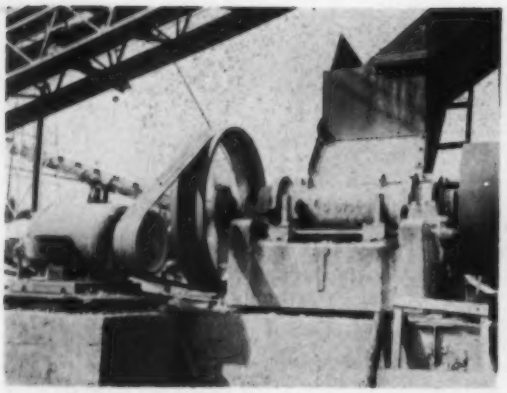
A Telsmith reciprocating feeder discharges the material from the hopper onto a 24-in. by 93½-ft. Barber-Greene belt conveyor. At the present time, while digging is under way near the creek in opening the deposit, a man is stationed at this conveyor to pick out sticks, etc. Later this will not be necessary. This conveyor discharges on a 5- by 12-ft. Telsmith 2-deck scalping screen with 2½- and ⅞-in. wire cloth. The oversize off the top deck is chuted to a 10- by 36-in. Pioneer jaw crusher set at 1¾-in. opening. This is driven by a 30-hp. Ideal electric motor through V-belts. A 24-in. by 47-ft. belt conveyor returns the crushed gravel to the conveyor ahead of the screen.

The material over the second deck of the screen is chuted to a Telsmith 13B Gyrasphere crusher which makes the cubical product necessary for asphalt. This crusher is driven by a 60-hp. Ideal motor through V-belts. Its minus 9/16-in. product, together with the material through the bottom deck of the scalping screen, is carried on a 24-in. by 13½-ft. Barber-Greene conveyor to a 5- by 10-ft. Telsmith double-deck desanding screen. This screen has ½-in. wire cloth on the top deck and 3/16-in. on the bottom. It is equipped with 28 Link-Belt spray nozzles, 4 on each

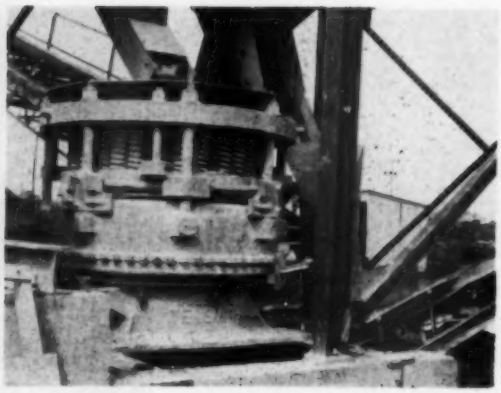
The tunnel reclaiming conveyor (left) feeds material excavated by cableway, and dragline-loaded trucks discharge direct to the plant hopper.



The scalping station, with the scalping screen above and the spherical head and jaw crushers below. The conveyor at the left feeds material through the screen and the spherical crusher for further processing.



The 10- by 36-in. jaw crusher which reduces oversize from the scalping screen and discharges onto the return conveyor in closed circuit.



The No. 13B spherical head crusher which performs the final reduction of the gravel before further processing.

of 7 rows of pipe. Both screens are equipped with Harristeel wobbly weave wire cloth.

The material over both decks of the last screen is discharged into a 72-in. by 10½-ft. Telsmith rotary scrubber which is equipped with lifters. On the end of the scrubber is a 3-ft. trommel with 3/16- by ¾-in. long openings and the water and fines through this can be wasted or fed to the sand screw as desired.

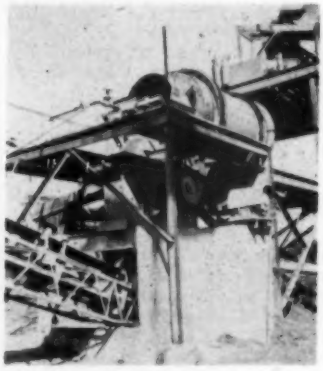
The coarse material from the scrubber can go to or bypass a 36-in. Stedman soft stone eliminator. There is little soft stone, and this machine also serves to break up the few slivers in the rock. It is driven at the rate of 360 r.p.m. by a 20-hp. Ideal electric motor. The material in either case is discharged on a 24-in. by 153-ft. Barber-Greene belt conveyor which carries the rock to the top of the final screening building, where it is discharged on a 4- by 10-ft. Simplicity 4-deck sizing screen. This has ⅞-, ⅜-, 3/16-, and 3/32-in. cloth and has two rows of 4 Link-Belt spray nozzles on each of the two top decks. The materials off these decks can be chuted into four Butler 45-cu. yd. steel bins as No. 3, 4, 6, and 9 gravel. Any desired combinations can also be made. The material through the bottom deck can be wasted or fed through a 4-in. pipe into a 48-in. by 28-ft. Telsmith sand drag.

The material through the bottom deck of the desanding screen is concrete sand and this is discharged into a 24- by 36-in. Telsmith screw classifier with such turbulence that some of the fines overflow into the drag. Gates can control the overflow to anywhere from 30 to 50 percent.

The concrete sand from the screw is discharged through a flop gate onto a 24-in. by 127-ft. rail-mounted radial stacker which can stockpile 30,000 tons in a 160-deg. arc. The fine sand from the sand drag can be discharged to either the radial conveyor or an 18-in. by 112-ft. conveyor to a bin for truck loading or both. In this way any desired blend of the two sands can be stockpiled. The radial conveyor is moved by an electric motor and limit switches control its travel in both directions.

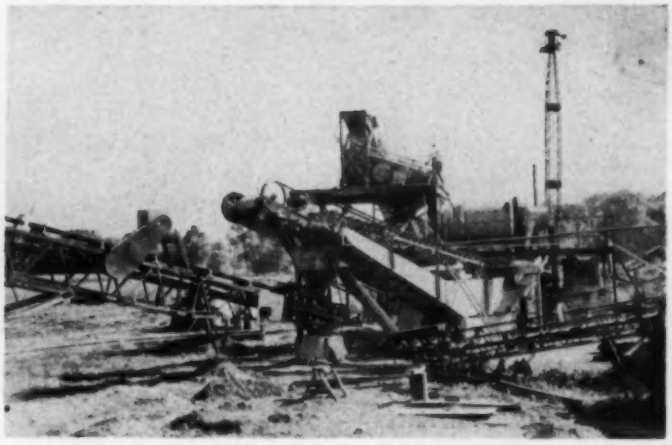
The plant usually makes Ohio No. 4, 6, and 9 gravels for bituminous paving and No. 3 and 4 for ready-mixed concrete, using the plant setup described above. When larger sizes of concrete aggregate are desired, the ⅞-in. wire cloth on the bottom deck of the scalping screen is replaced with 1½-in. cloth, the Gyrasphere crusher opening is changed to ⅝ in. and the jaw crusher opening to 2 in. Although rated

The final washing station, viewed from the conveyor to the final sizing screen and bins. Shown are the desanding screen, with the rotary scrubber and the soft stone eliminator below. At the left are the sand drag, the screw washer, the radial stacking conveyor, and the fine sand conveyor to the bin.

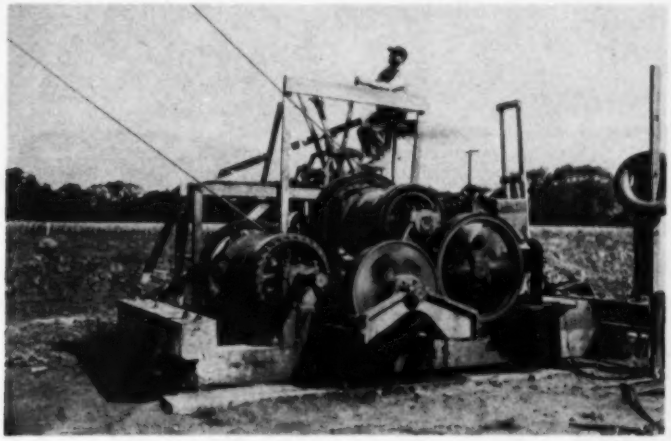


A closeup of the 72-in. by 10½-ft. rotary scrubber, with a 3-ft. trommel section, and the 36-in. soft stone eliminator below.

A closeup of the 48-in. by 28-ft. sand drag, which makes fine sand, and the 24-in. by 36-ft. screw classifier, which makes coarser sand. Products of both can be blended to specifications.



Another view of the washing station, showing the radial stacker at the left and the fine sand conveyor at the right.



The hoist which operates the slackline cableway system, shown before it was housed in.

Clarence G. Tugend, secretary-treasurer and general manager of the company.

at 200 t.p.h. the plant capacity actually varies between 150 and 220 t.p.h., depending on the type of feed and on the sizes being made.

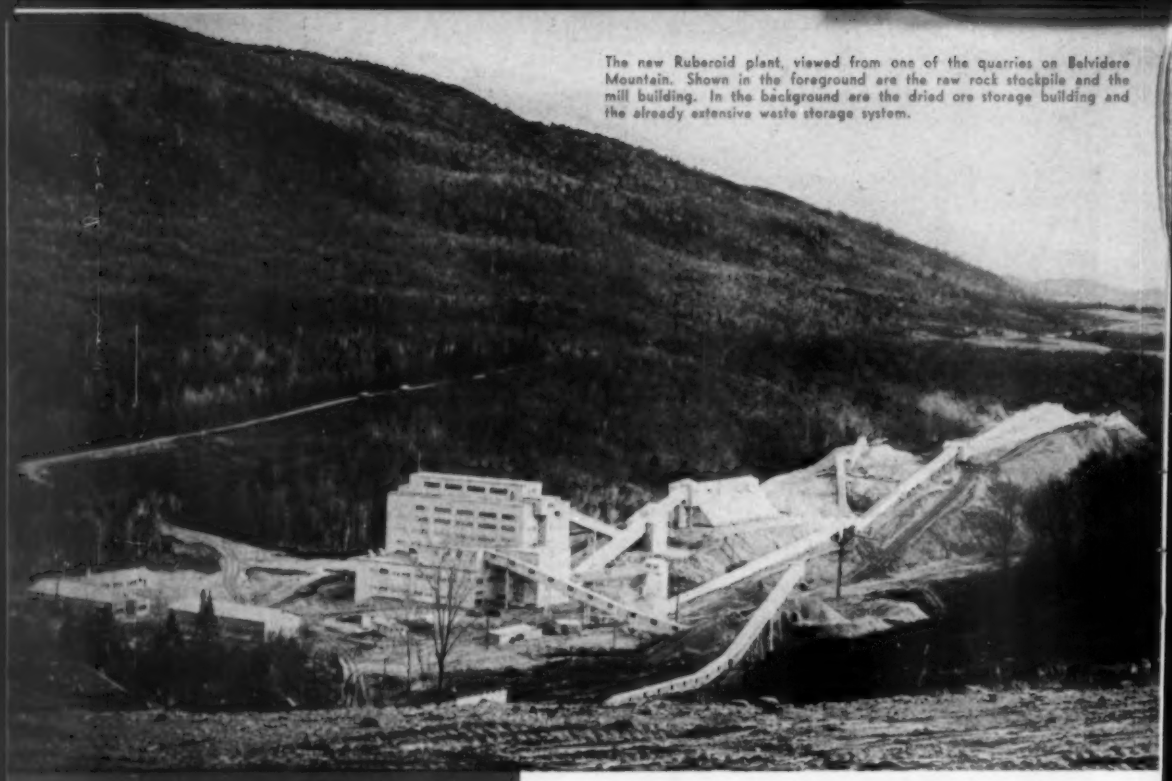
The plant is built entirely of steel and concrete for permanence, efficiency, and low maintenance. The conveyors are on 21-ft. steel-frame sections which are supported on steel bents and concrete bases. The conveyors are now all equipped with wind-protecting arches but they will eventually be completely covered. Barber-Greene conveyor idlers, pulleys, etc., and Goodyear conveyor belting are used throughout. Electric power is purchased and reduced to 440-v. for all motors. The plant has automatic sequence starting and stopping to protect against pileups in case of failure of any motor or machine. All controls are in a centrally located building. Water for washing operations is provided from the pond at the rate of 1,100 g.p.m. at a pressure of 40 lb. by a 6-in. Gorman-Rupp pump.

Light for night operation or during winter months when days are short is provided by a war surplus airplane guide tower. This steel tower is 60 ft. high and has four fixed lights and one movable spotlight. The spotlight is usually fixed on the dragline and the others are adjusted to floodlight other areas.

During this winter many things are being done which had to be delayed in order to get the plant in operation as quickly as possible. A siding is being built to the B. & O. Ry., so that rail as well as truck shipments can be made. A garage and a modern building for the employees are under construction. The various operating stations of the plant are also being housed in.

Truck shipments are weighed on a 50-ton Howe scale in the modern plant office building. A ¾-cu. yd. Marion shovel, a ½-cu. yd. General clamshell crane and a Haiss rubber-tired loader are used about the plant for rehandling and loading materials. An International TD14 tractor with a Bucyrus-Erie bulldozer is used for similar work.

The three officers of the company are co-owners. Carl H. Stander is president; Richard R. Stander is vice-president; Clarence G. Tugend is secretary-treasurer and general manager. Carl Stander has operated the Mansfield Asphalt Co. since 1926. Mr. Tugend was formerly superintendent of maintenance for Division 3, comprising 7 counties for the Ohio Highway Department.



The new Ruberoid plant, viewed from one of the quarries on Belvidere Mountain. Shown in the foreground are the raw rock stockpile and the mill building. In the background are the dried ore storage building and the already extensive waste storage system.

RUBEROID COMPANY'S NEW VERMONT ASBESTOS OPERATION *Sets New Standards*

Advanced methods are used from prospecting

A close-up of the mill building, with the truck loading dock (foreground), the drying department (right), and the dried ore storage building (left).

THE United States has always depended on other countries, chiefly Canada, to supply its requirements of asbestos. Those who believe that this country should be as nearly as possible self-sufficient in its raw material needs should be gratified to learn that our output of asbestos has taken a sizable jump in the last few years. This is due entirely to the new Lowell operations of the Vermont Asbestos Mines division of the Ruberoid Company near Eden, Vermont. This mill has a capacity of 100 to 125 t.p.h. of raw ore and now produces 96 percent of the chrysotile

One of the three levels of the quarry under development. Shown are two 3-cu. yd. shovels and one of the five 6½-in. churn drills.

By WALTER E. TRAUFFER

One of the two 7- by 60-ft. parallel-flow rotary driers, with the 10-ft. diameter cyclone collectors and the 34,000-c.f.m bag-type filter in the background.

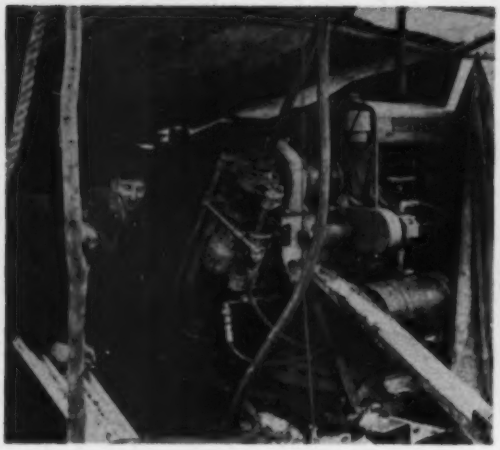
for Industry

through packaging of finished product

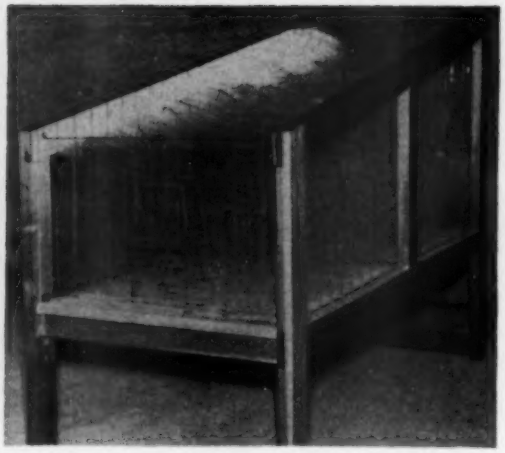
asbestos produced in this country. This is still only a small percentage of this country's requirements, but it is produced in one of the largest and probably one of the most modern and efficient plants in existence. The asbestos fibers produced are comparable to similar grades from other sources and are graded and priced the same as Canadian fiber.

The deposits of chrysotile asbestos being worked at this location are on the southeast slope of Belvidere Mountain in north central Vermont, 20 miles south of the Canadian border and 75 miles southwest of the nearest deposit being worked in Que-

Packaging progress, seen in three types of 100-lb. bags: old jute bags (left); current paper bags (center); compression-packed paper bags (right).



One of the two rotary core drills used for proving deposits.



A quarry scale model (made from test findings) which helps in outlining economic limits for mining and in selecting mining methods.

bec Province. The serpentine masses are similar to those in Quebec and are peridotites intruded in the post-Ordovician period.

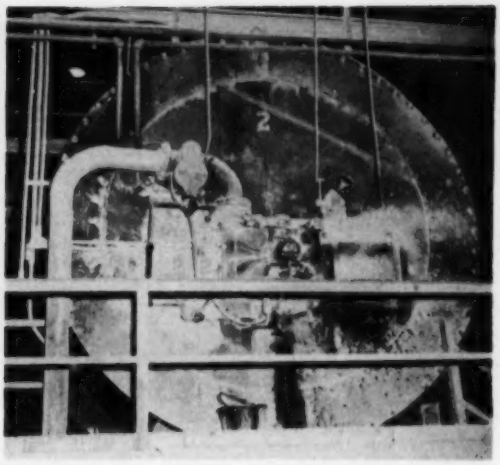
The first discovery of asbestos in this area was made in 1824, but no extensive use was made of it until 1936, when the Vermont Production Co., Inc., a subsidiary of the Ruberoid Company, took over the plant and property of the Vermont Asbestos Corp. of America and began production on a small scale. (See PIT AND QUARRY, December, 1936, pp. 57-9.) Only 10,000 tons of fiber were produced that year. In succeeding years the plant was enlarged and improved to a capacity of 100 tons per hour. (See PIT AND QUARRY, June, 1939, pp. 42-3.) The plant was later further expanded and quarrying operations improved. (See PIT AND QUARRY, February, 1942, p. 50.) An article in the June, 1945, issue, pp. 69-71, described the opening of the new deposit and the installation of an aerial tramway to the old plant.

The original plant and workings were near the top of Belvidere Mountain on its south side, but it was realized some years ago that they were of limited extent. A search was begun, and large deposits of higher grade ore were found at the present location. The company's holdings were extended to 2,500 acres and an extensive prospecting and exploration program was begun. Pending the completion of this program, preliminary development of the deposit was begun. Drilling and loading equipment was installed, and a 5,000-ft. aerial tramway was built to carry the ore 1,000 ft. upward to the original mill. When it became certain that the new deposits were of sufficient extent and quality, it was decided to build a new and larger mill near it. Plans were begun in January, 1948, and the new mill went into limited production on August 31, 1949. As development of the quarry progressed, production increased to the point where the old plant was no longer needed and it was shut down.

The company has developed an efficient and accurate system of prospecting which was used in locating and proving this deposit and in its continuing search for others. The Magnetometer is used in locating ore bodies, and through it several were found which were completely buried. Core holes were then drilled on a 100-ft. grid system, using two Joy rotary drills. Selected cores, representative of various areas of the deposit, were then milled in the laboratory and logged for fiber content. An original method of procedure is used in the laboratory of which the company is very proud. On the basis of results obtained, development work was begun by opening small quarries or sinking 10-ft. diameter shafts around selected drill holes. Samples of up to 3,000 tons from each location were then treated in the regular mill flow for a final check. Large-scale operations at the sites selected have confirmed the accuracy of this three-stage evaluation system. After investigations are completed and a deposit is proved, a scale model is built, economic limits are outlined, and the method of mining is selected.

The design of the mill was based on practice tried out for years at the old Eden plant and from a study of methods used in Canadian plants. The company's staff did all design and engineering and all of the construction except for the mill building alone, which was designed and built by engineers and contractors special-

One of the two 3-cu. yd. shovels in the quarry, loading one of a fleet of 15-ton heavy-duty dump trucks.



The 48- by 60-in. primary jaw crusher at one of the dumping stations.

Right: The firing end of one of two rotary driers, showing the air-jacketed, oil-fired combustion chamber.

izing in such construction. This 6-story building is built of structural steel, with a concrete main floor, foundations and footings, and has 65,000 sq. ft. of floor area. Ruberoid corrugated asbestos-cement siding and roofing are used. The interior of the plant is a maze of air ducts. A scale model proved to be invaluable in locating the equipment.

The plant, as has been stated, was designed by the company's staff, who can take great pride in their accomplishment. The plant was designed for maximum flexibility, with provision for bypassing any machine in case of trouble, and with sufficient excess capacity so that this can be done without affecting output or quality of product. Among other things, this plant involves a number of firsts for the industry. The use of high faces and large blasts in the quarry, new to this industry, has proved to be economical. The plant is also believed to be the first to collect wet dust from the driers. Other features, some of which are also firsts, include the following: outdoor stockpiling of undried ore, which makes possible plant operation during bad winter weather; the fact that all milling from the third-stage crushing on is done in one building; remote control of mill feed; no bucket elevators; a heated mill which varies between 60 and 70 deg. F. in zero weather; complete and efficient dust control; graders driven by variable-speed motors; removal of wood from mill flow by wet classifiers; special treatment of float to remove magnetite and increase bulk; electric motors interconnected for automatic sequence starting and stopping. The special treatment of floats is of special interest.

The asbestos fiber is aspirated (removed by suction) from oscillating sloped tables which are operated at slow speed to bring the fiber to the surface. The first series of aspirating hoods has sufficient capacity to handle surges in case any one or several machines goes out of operation. The fines and rock powder are screened out of the fiber by Rotex or Simplex-type screens which have a flat circular motion at their feed ends and a fore and aft shaking motion at their discharge ends. Rubber balls bouncing under the screen cloth keep it from blinding. The three successive stages of screening and air cleaning used in this plant result in a clean fiber.

The design and controls in this plant are such that various fiber lengths and types can be blended as desired, maintaining uniformity of test, combinations of various lengths of fiber, granular material content, absorption, freeness or filterability, cleanliness, and color.

The ore body now being mined is 3,000 feet long and 400 to 800 feet wide, with a sloping surface from the 1,400-ft. to the 1,000-ft. level. The overburden was removed by hydraulicking, which also cleans out wood and other undesirable material from the surface of the deposit. The quarry is being worked in 100-ft. benches starting at the 1,400-ft. level and working down. Two levels

The dried ore storage building and the conveyors which feed to and from it.

Some of the control equipment in the drier department, with the drier cyclone and the dust collector above.

are now in operation, and a third is being developed in order to get the desired ore blend. Blast-hole drilling is being done with five Bucyrus-Erie 29T churn drills. The 6¼-in. holes are spaced 10 to 18 ft. apart with a burden of 25 to 50 ft., depending on conditions. Dupont and American Cyanamid 75 and 60 percent gelatin are used with Primacord and some instantaneous and some delay caps. Shots bring down from 50,000 to 100,000 tons each. The drills average 2.40 f.p.h. and the yield averages 4.45 tons per pound of explosive. Secondary drilling is done with Joy TM49 drifters and LB57 jackhammers using detachable bits. In hard rock carbide bits are used.

Two of the fiberizing mills which break the fiber loose from the rock.

Two 3-cu. yd. Marion shovels load the ore into five Model 27FD Euclid rear-dump trucks with 15-ton bodies. Because of the rugged terrain it is found advantageous to keep the hauls short by moving the crushing plants and extending the conveyors to keep close to the working face. The trucks loading at the 1,050-ft. level discharge into a 40-ton steel hopper from which a 15-ft. by 60-in. Kennedy-Van Saun pan feeder supplies the 48- by 60-in. Traylor primary jaw crusher. The minus 6-in. product is carried on a belt conveyor to the 5½-ft. Symons standard cone secondary crusher. Another conveyor discharges to a wet stockpile with a capacity of 75,000 tons.

At the 1,175-ft. level there is a 36- by 42-in. jaw primary crusher and the secondary crusher is a 4¼-ft. Symons standard cone. This product also goes to the wet stockpile.

The wet ore is reclaimed from the stockpile by a 24-in. tunnel belt conveyor. This elevates the ore 45 ft. to the mill building, where all processing beyond third-stage crushing is done. There the ore is discharged into two 7- by 60-ft. Hardinge parallel-flow rotary driers. This type of drier can be used without detriment to this ore. Each drier has a circular air-jacketed, oil-fired combustion chamber. Cooling air is forced by a fan through the 6-in. annular space between the steel shell of the drier and the outer face of the plastic lining into the burner end of the combustion chamber. This design reduces fuel consumption and prolongs the life of the firebox lining. The moisture content of the ore is reduced from 5 to 6 percent at times

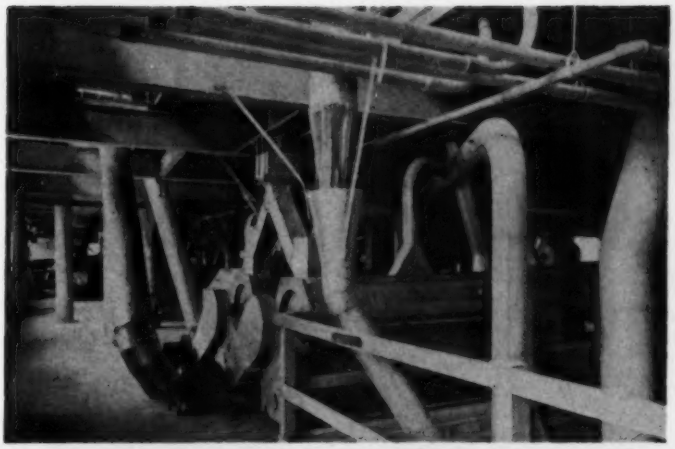
The conveyor weighing device, which also regulates the flow of dried ore from the storage building.

down to 0.6 to 0.8 percent with a consumption of 0.8 gal. of Bunker C fuel oil per ton. In dry weather the driers can be bypassed in the flow with conveyors discharging direct to the crusher.

The air, steam, and gas is drawn from the discharge ends of the two driers by two 17,000-c.f.m. American Blower Co. fans and blown through two 10-ft.-diameter cyclone collectors into an American Wheelabrator and Equipment Co. 34,000-c.f.m. bag-type filter. Orlon cloth bags are used because of their resistance to deterioration from the heat and moisture. The bags in use have been over a year of service and are still in good condition. Automatically-controlled dampers let the fans exhaust to atmosphere when the temperature in the filter exceeds 240 deg. F. Automatcially-controlled strip heaters keep the gases in the hopper and filter compartment from falling below the condensation point.

The dried ore crusher is a 5½-ft. Symons short-head cone. The 1-in. minus product goes to a pair of 3-ft. Symons short-head cone crushers which reduce to ½-in. minus. A 24-in. belt conveyor with a traveling tripper distributes the dried ore into a 10,000-ton covered storage building. A Syntron vibrating feeder controls the volume of flow from storage onto the mill feed belt conveyor. A Merrick Weightometer with a rheostat controller and recording meter regulates the rate of flow by remote control. The feed belt delivers the ore to two identical flows in the mill. The asbestos fiber is aspirated ahead of and following four Ruberoid fiberizers to separate cleaning and grading circuits from screens with ¼- and ⅛-in. openings. At this point after aspiration the plus ¼-in. mate-

Two of the horizontal graders which precede the final cleaning and grading screens.

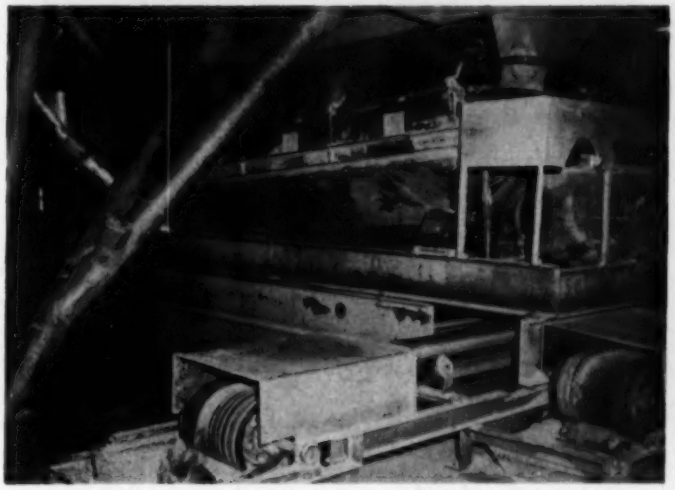


rial is sent to tailings as it contains less than 0.2 percent fiber and is not economical to process further. These tailings include any magnetite and wood remaining in the ore. The fiberizer-hammers are hard-faced for longer life.

The minus ¼-in. material goes over a screen with 1/16-in. perforated plate and to a pair of Impact mills. Following these are four Ruberoid screens with 1/16-in. perforations. The fiber is aspirated at the discharge ends of these screens. The remaining material also goes to tailings but it can be further treated if desired.

The Ruberoid fiberizing mills throw the rock and hard fiber against breaker plates in a high-velocity downcurrent of air which sweeps away the free fiber. The impact mills have swing hammers which hit the fiber and rock when falling through the machine. A Nordberg vertical screen is used for removing fine sand from the fiber.

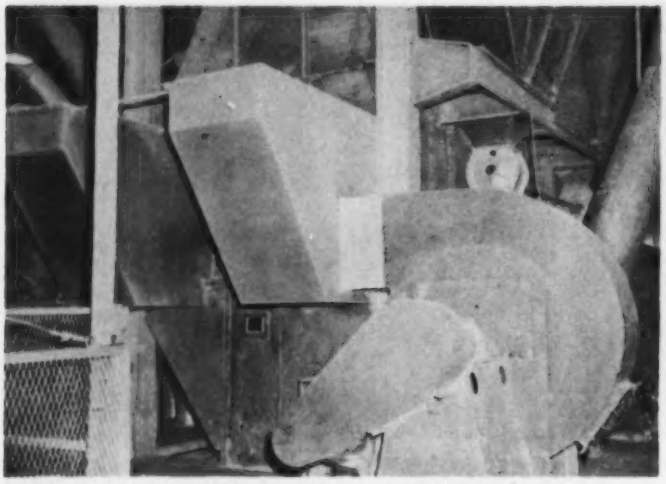
The asbestos fiber from the plus ¼-in., plus ⅛-in. and plus 1/16-in. screens are lifted separately to cyclone collectors on the fifth floor of the mill building, which discharge through rotary valves to belt conveyors. These belt conveyors carry the fiber, still divided into three groups, to the grading department, where they are discharged into horizontal graders which are driven by variable-speed motors. From the graders the fiber goes to Ruberoid type cleaning and grading screens which are equipped with aspirating



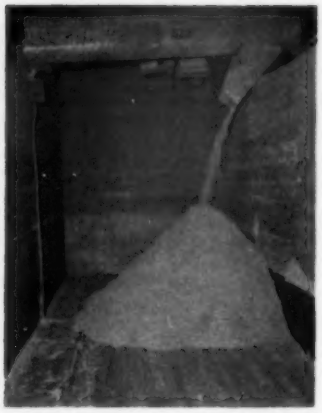
One of the rotary reciprocating screens which do the final cleaning and grading of fiber.

A new type of vertical screen which is used for removing sand from fiber.

The 300,000-c.f.m. bag filter which is connected to all equipment in the mill building.



Some of the fans and ducts connected to the mill building dust collector.



The screw conveyor discharging one size of finished fiber to a bin over the bagging machine. At the left is a rope for pulling the cover off the floor opening.

hoods at their discharge ends. The aspirated fiber is discharged into accumulating bins. Up to 12 grades of fiber can be produced simultaneously. This fiber is then discharged by gravity to bagging machines on the first floor of the building. Both paper and jute bags are used. These are stencilled before being hauled 18 miles by truck to the nearest railroad siding or to warehouses.

The dust-laden air from all the suction fans in the mill building goes to an American Wheelbrator 300,000-c.f.m. bag filter at the top of the building.

Bag packing methods in asbestos plants have not changed since almost the infancy of the industry and are comparatively inefficient. Ruberoid, however, has nearly perfected a compression packer which will be a big step forward, and other producers are said to be working on similar systems. This packer will compress the fiber about 50 percent to a weight of 50 to 60 lb. per cu. ft., and will pack it in paper bags. The more compact and rectangular bags will store and palletize better and will greatly increase warehouse capacity. This method does not harm the fiber in length or in any other way. The bagged material can be fluffed by mild fiberizing action in a fan or by some other means, a procedure which most large users of the product are already equipped for.

The plant has 3,300 hp. of connected power load with over 300 motors ranging from 1 to 200 hp. Utility power comes in at 33,000 v. to a bank of six delta-connected transformers outside the mill building. From these 2,300-v. lines go to the motor control centers on each floor of the building and to outside equipment. The electric power consumption for the entire operation is 14.1 kw. per ton of ore, of which one-third goes to handling the 300,000 c.f.m. of air required.

The modern plant buildings also house a complete laboratory, which is equipped for making all necessary tests in addition to fiber control and the core analysis setup already described. There are also a modern, completely-equipped machine shop and maintenance facilities.

M. J. Messel, general superintendent of these operations, had a wide experience in asbestos prospecting, development, and production in various countries before coming with Ruberoid. He played an important part in the development of this deposit and plant. Morgan Potter is assistant superintendent and is in charge of mining operations; I. E. Matthews is plant maintenance engineer; John Stewart is mining engineer; J. P. Wiser is fiber research and development engineer; Carl White is mill superintendent.

Officers of the Ruberoid Company are Herbert Abraham, president; S. Woodward, executive vice-president; and G. F. Bahrs, secretary and treasurer.

Industrial Hygiene

(*From page* 65.)

in the action of dust in the human lung. One conclusion which was reached in the discussion is that present-day instruments and techniques for appraising dust hazards are useful, provided that their shortcomings are realized and conclusions from data obtained by them are cautiously used.

The utilization of specialized laboratory equipment in solving industrial hygiene problems was discussed by Frank A. Patty, head of the Industrial Hygiene Department of General Motors Corporation. Various types of emission and absorption spectro-photometers, polarographs, electron microscopes, X-ray diffraction cameras, and other instruments are useful in industrial hygiene work. The principal question is whether enough use can be found in a specialized industrial hygiene laboratory to justify the cost of such instruments. Many companies have found it practicable to have such tools available in their research departments.

Various safety and health considerations related to the industrial use of chloro-bromo methane, carbon tetrachloride, perchlorethylene, methyl chloroform, and other aliphatic halogenated compounds were discussed by Dr. D. D. Irish of the Dow Chemical Company.

ITHACA SAND & GRAVEL CO., INC., filed articles with the secretary of state at Albany, N. Y., changing its capital stock from $100,000 to $150,000. Certificate also contains change of name to RUMSEY-ITHACA CORPORATION.

Production of portland cement in Canada in both August and the first eight months of 1952 was higher than in the corresponding periods of 1951, according to the bureau of statistics. Production in barrels in August was 1,561,519, as compared to the same month last year, at 1,512,626. The eight-month total for 1952 was 11,959,750.

"The most versatile machine we know"

George M. Baker, Lockwood, Mo.

You don't have to take a second look to see that Mr. Baker is referring to a Caterpillar HT4 Shovel. This machine is known everywhere as an all-purpose tool with a specialist's ability, because it handles so many different jobs so well. The rig shown here is loading pulverized limestone on trucks at Caplinger Mills, Mo. Mr. Baker says: "We also use it as a 'dozer, hauler, clean-up and many more things on the job."

Versatility is just one of the many advantages you get when you put a Cat HT4 Shovel to work for you. It's economical to run, burning low-grade, low-cost fuels without fouling. Power and capacity are matched for smooth, easy operation. And it's ruggedly built for long life. For example, its all-welded girder type frame is cross braced for extra strength and mounted close to the carrier rollers to lessen loads on transmission case and tractor frames. Lift arms are braced to prevent twisting and to keep the bucket level. And the hydraulic system is sealed to keep dust out and oil in. These and other features add up to a machine that's steadily on the job and seldom in the shop!

Your nearby Caterpillar Dealer is a reliable source of information and service. Get the full facts about this versatile, money-saving unit from him. Ask for a demonstration—he'll be glad to arrange one for you!

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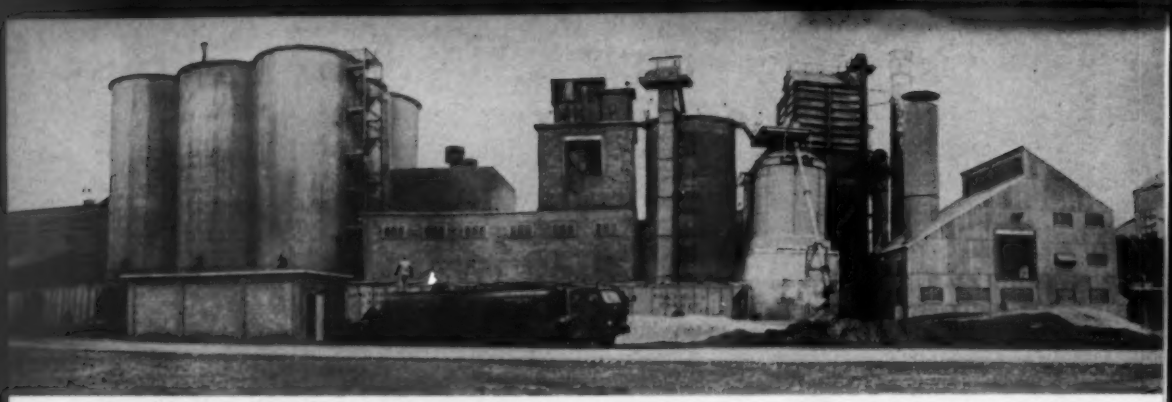


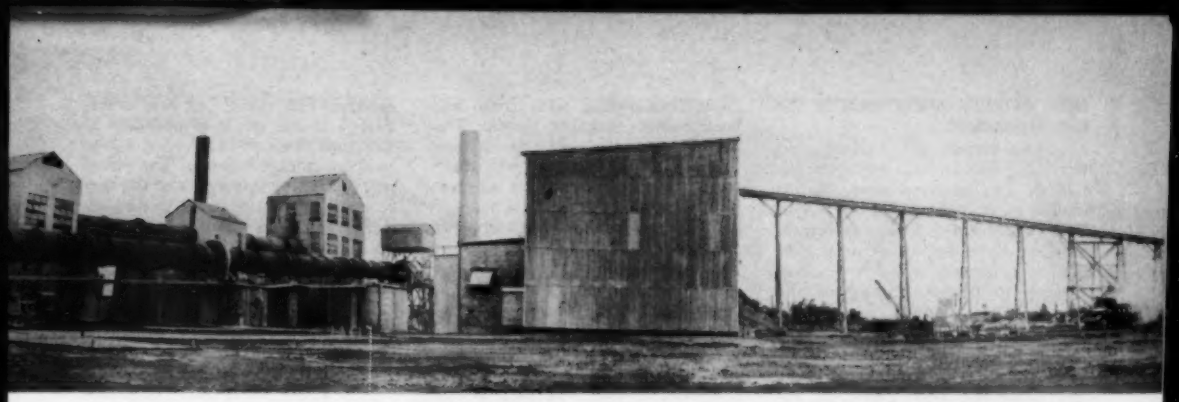
A panoramic view of the new part of Carolina Giant Cement Company's plant at Harleyville, S.C., showing (left to right): the oil storage pump house; the packhouse; nine 12,000-bbl. cement silos; a No. 6 fuel oil truck being unloaded; the finish mill addition, with air separator and dust collector penthouse on top; the 700-ton concrete gypsum silo; clinker feed tanks; the elevated clinker tank;

CAROLINA GIANT CEMENT COMPANY *adds One Million Barrels to Capacity*

By HOWARD S. PONZER

Vice-president in charge of Engineering and Development, Giant Portland Cement Company and Carolina Giant Cement Company

An aerial view of the Harleyville plant of Carolina Giant Cement Company.



the burner building; the new 11-ft. 3-in. by 245-ft. kiln, with the kiln feed tank, feed building, and stack; the 9-ft. 6-in. by 250-ft. portion of the original two-piece kiln, with its stack and feed building; the raw mill building, with its pressurized electrical distribution center; and the belt conveyor from the crusher station in the quarry. At the extreme right clinker is being reclaimed from the stockpile.

another P&Q exclusive

WITH the announcement in late 1950 of plans for the construction of an Atomic Energy Plant only about 70 miles distant, Carolina Giant Cement Company officials decided to make a substantial increase in the size of the plant at Harleyville, S. C. Steps were taken immediately to draw plans, secure a certificate of necessity, and obtain material priorities, so that the addition could be built in the minimum of construction time.

Construction work began early in July, 1951, and despite slow deliveries on many items, the work was sufficiently advanced by late June, 1952, to permit starting the kiln. The last of the construction, including completion of the addition to the finish mill, painting, lighting, and the like, was accomplished by mid-September.

Since the Harleyville plant, located in the eastern part of the state 2 miles north of Harleyville and approximately 45 miles in a northwesternly direction from Charleston, S. C., was originally constructed as an experimental alumina extraction plant in 1943, and subsequently converted to a portland cement producing plant by the present owners in 1947 and 1948, planning the expansion was much more difficult than that ordinarily encountered in a plant specifically designed for the manufacture of portland cement. A glance at the layout of the plant as originally converted to cement manufacture shows the equipment to be in a straight-line material flow pattern. The completed plant is shown in the final layout drawing. (P. 81)

The following are the more important parts of the plant which were newly constructed or which had important alterations made to the existing equipment:

1. A completely new crushing station was built in the quarry with a new belt conveyor for conveying the crushed material to the raw department feed hoppers.

2. An entirely new raw department was built to replace the original one, which did not lend itself to expansion.

3. The finish department was enlarged by the addition of one mill from the old raw department.

4. A new clay-processing building was constructed to house beneficiation equipment which has not previously been used in the cement industry. Experimental work during 1950 had shown it to be highly effective under the unusual conditions found at this plant.

5. The existing slurry holding and blending tank capacity was increased by the addition of: (1) two slurry holding tanks, (2) two kiln feed tanks, and (3) conversion of a 110-ft. dia. clay thickener to a basin for holding slurry of kiln feed composition. The former kiln feed tank was converted to a batch blending tank. All of the old 6-in. slurry lines were replaced with 8- and 10-in. lines.

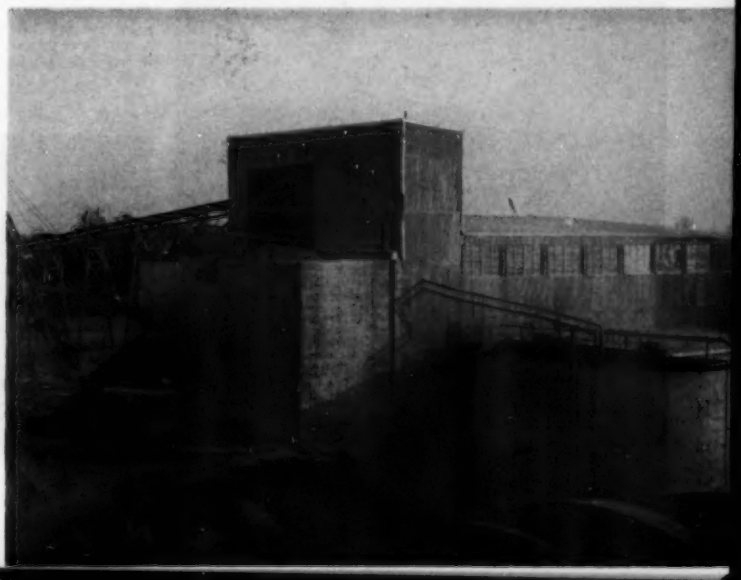
6. A new compressor house building was constructed and the high- and low-pressure air compressors were moved to this building since the original location of the compressors interfered with the installation of the new kiln.

7. The clinker storage capacity was increased by moving and putting into use two previously unused steel tanks; the distribution system was altered; and a screen and crusher were added to provide minus ½-in. clinker to the finish mills.

8. A new 700-ton concrete gypsum silo was built.

9. A new 1,000,000-gal. No. 6 fuel oil tank was constructed; also, a pumping station to unload incoming oil and to convey it to the tank and

The raw mill, showing the crane in position to charge the feed hoppers from outside storage. At the right are the clay slip tanks.



from the tank to day tanks in the kiln department.

10. An entirely new underground electrical distribution system was installed. The electrical work also included moving the two main 2,500-kv.-a. transformers to a more central location where the voltage drop after the transformers would be low enough to permit starting of the new 1,000-hp. motors in the raw department.

As mentioned above, construction began in July, 1951. By that time, test piling had been driven by the local plant force, and the Macdonald Engineering Company of Chicago was prepared to go ahead with the final engineering design work and to move in a field construction force, which supplied the basic layout and preliminary departmental layouts. It is of interest to note that the plant area where most of the new equipment was to be located originally was a large sink hole filled by nature with alternate layers of quicksand and other poor load-bearing material. For this reason practically all the new equipment is supported on piling driven to solid marl.

While the design of the addition was conservative, in that untried equipment and methods were avoided wherever possible, the engineers incorporated a number of items which are of interest. They are as follows:

1. The primary crusher is a 5060 Dixie hammermill with front and back moving breaker plates. This mill is about the only type capable of handling the comparatively sticky marl which comes to the crusher. The marl contains not less than 15 percent moisture and often appreciably more.

2. Because of the wet nature of the marl, secondary crushing before stockpiling was not attempted. Providing fine-size feed for the main grinding mills was accomplished by placing a moderate-size hammermill immediately ahead of each of the grinding mills. There the material is reduced to minus ¼-in. and is washed through the grate bars by means of clay slip introduced into the hammermill along with the marl.

3. All process water used in the plant is obtained from the quarry; it is the water which seeps in through the porous marl formation. This water otherwise would have to be pumped out and wasted.

4. The clay processing system is unique in the cement industry in that the local clay, which forms a part of the overburden of the marl deposit, is much too high in silica. The silica content often runs as high as 85 percent. Two Dorrclones, manufactured by the Dorr Company, are used to reduce the silica content to the 65 percent required in the process.

5. A swivel belt is used at the end of the main belt conveyor from the quarry. This swivel belt was necessitated as the result of omitting at this time the construction of a raw material storage building. The swivel belt discharges into either of the two raw mill feed hoppers or to an outside storage pile where the marl can be returned to the feed hoppers by means of a crawler crane.

6. All of the slurry line valves at the 11 preliminary holding tanks are centralized and housed in two small structures which can be heated during freezing weather.

7. A 110-ft. slurry basin, originally designed for clay thickening, is equipped with an unusual recirculating line running completely around the periphery. Almost continuous circulation is required to prevent segregation. No air agitation is used as it was virtually impossible to install the necessary lines.

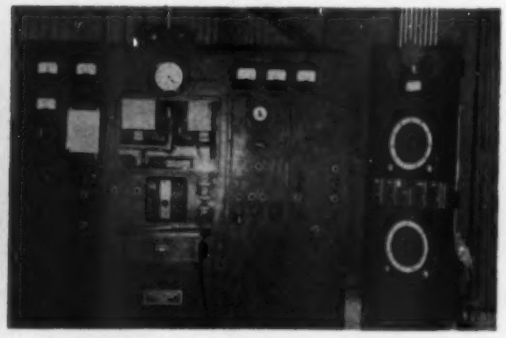
8. The steam boilers and the oil heat exchangers are located on the kiln floor, where they can be looked after by the burner helper. (No. 6 fuel oil is burned in the two kilns.)

9. The kiln stack is illuminated at night by floodlights located at ground level.

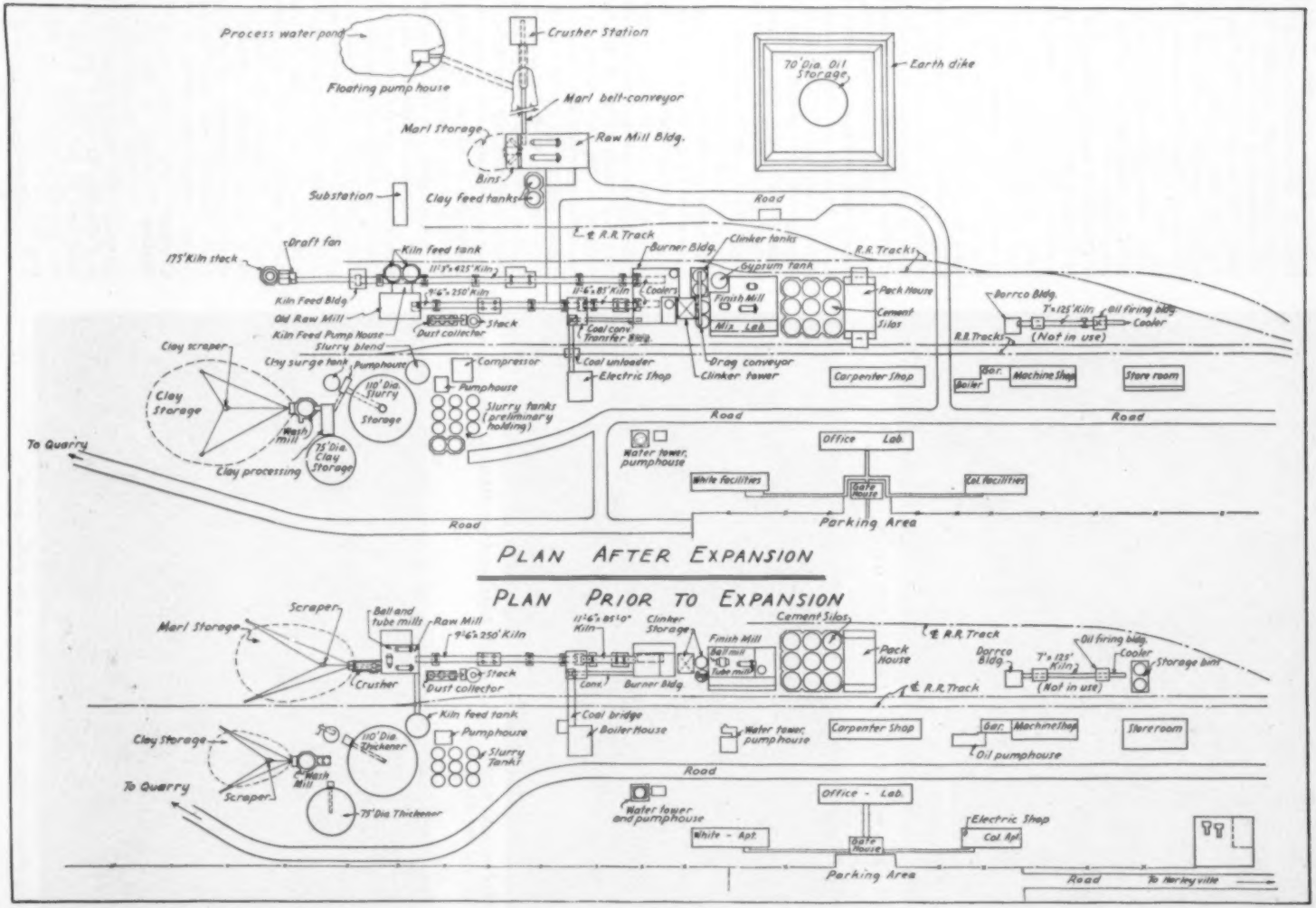
10. The mill added in the finish department is 9 ft. 6 in. by 11 ft. It formerly was the preliminary mill in the original raw department. This mill is equipped with an electrical ear, and the auxiliary equipment is designed to permit circulating loads up to 1,000 percent.

Quarry All of the raw materials except iron bearing cinders are found on the 400-acre plant site. A high lime material, locally called marl, underlies the entire tract in considerable thickness. This marl is of sea origin and is principally a loosely compacted formation of high lime material containing an appreciable amount of decomposed fine-size shell, coral, and some whole shells of moderate size. Clay is obtained from the 15- to 20-ft. layer of overburden. The top 5 to 8 ft. of the overburden consists of a non-

Belt conveyor 30 in. wide by 800 ft. long carrying crushed marl from quarry to plant.



Below: Kiln control panel for new kiln. Automatic cooler relief stack damper on right.



PLAN AFTER EXPANSION

PLAN PRIOR TO EXPANSION

Drive motor and discharge end of an 8- by 40-ft. raw mill.

Clay processing building, clay storage pile (right), wash mill (hidden by surge tank), surge tank and clay storage basin.

One of the two boilers and heat exchangers of the oil-fired system.

uniform mixture of kaolin and other types of clays, with an excess of comparatively coarse free silica sand. The remainder is almost pure silica sand. This is wasted. Stripping is done by two TS-300, 17-cu. yd. heaped capacity LaPlant-Choate rubber-tired, diesel-driven pan scrapers. The clay is hauled approximately three-eighths of a mile to the plant for processing, as described in detail later.

The top of the marl formation is at elevation 60 ft. The marl is potentially recoverable to elevation minus 40 or a total of 100 ft. and analyzes 95 to 97 percent calcium carbonate. At present, however, only 60 ft. of marl is being recovered since there is potential danger of a water breakthrough. Drillings have shown that at elevation minus 40 there is an impervious layer which effectively seals off underground water occurring there under sufficient pressure to produce a flowing well if the impervious layer is penetrated. Therefore, it is considered necessary to leave a 40-ft. layer of marl to make sure that a breakthrough does not occur. Later it is hoped that it will be found safe to recover a total of 80 ft. of marl.

Because of the relatively loose compaction of the formation, there is a continual inflow of water through the face into the quarry. Consequently, the marl stands in the bank with from 15 to 18 percent moisture. This has dictated the method of quarrying and the type of crusher selected for the new crushing station. The 60-ft. face is worked in three levels, and blasting is done almost every day, so that the material shot down may be transported almost immediately to the crushing station before it has time to absorb an appreciable amount of surface water. Shooting is light, and the recovery is seven tons per pound of explosive. A 2½-cu. yd. diesel-driven Model 80D Northwest shovel is used for loading the shot-down material onto two Model 27FD Euclid back-dump trucks for hauling to the crusher station. In the shot-down condition, the marl weighs about 90 lb. per cu. ft. Hence, a full load in these trucks represents 12 tons of marl. Currently the haul to the crusher averages about 400 ft.

Crusher Station The crusher station is located in the quarry 700 ft. from the raw department. The truck-dumping level is at elevation 20 or 20 ft. above the small area of the quarry which, so far, has been excavated to elevation 0.

The crusher station consists of a

concrete basement, which houses a 5060 Dixie hammermill equipped with front and rear moving breaker plates, and a steel frame and corrugated asbestos superstructure equipped with a 10-ton Abell-Howe overhead crane. The marl is fed to the hammermill by a 60-in. Pioneer four-speed pan feeder. The hammermill is driven by a 500-hp. motor and reduces the marl to 95 percent minus 3-in. at the rate of 300 t.p.h.

Starting at a point beneath the pan feeder, where a steep-sided hopper directs any spill from the feeder to it, a 30-in. belt traveling at 400 f.p.m. continues on under the hammermill to the raw department. This belt, which is divided into two sections, elevates the marl to a point immediately over the two marl feed bins of the raw department. Thus, the marl is conveyed 700 ft. horizontally and is elevated approximately 145 ft.

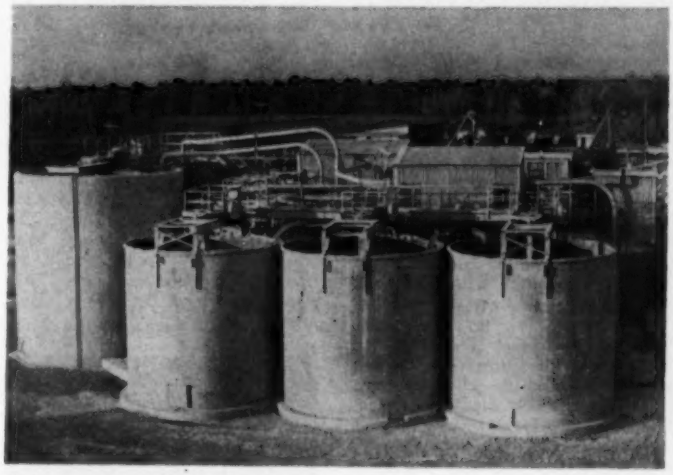
Since a quite considerable amount of water enters the quarry as the result of infiltration through the quarry face, a collection pond was dug from elevation 0 to elevation minus 14, and a floating pumping station was installed to pump the water to the plant for use in the process. Currently there is almost a balance between normal seepage into the quarry and the amount of process water required for slurry making. The floating pumping station is equipped with two Aurora Pump Company 6-in. pumps, each driven by a 75-hp. motor and each capable of delivering 1,400 g.p.m. to the plant at about 30 p.s.i. at the point of use.

Clay Processing The clay in the whole coastal area of South Carolina is extremely variable in composition and generally is quite high in silica. The clay on the property of the plant is no exception to this general rule; so the successful blending and processing of clay offers a problem of no small magnitude. The silica content of the clay as quarried often is as high as 85 percent, as contrasted with the 65 percent required. Thus, the silica ratio of all the clay lies in the range 4.0 to 8.0 or even higher.

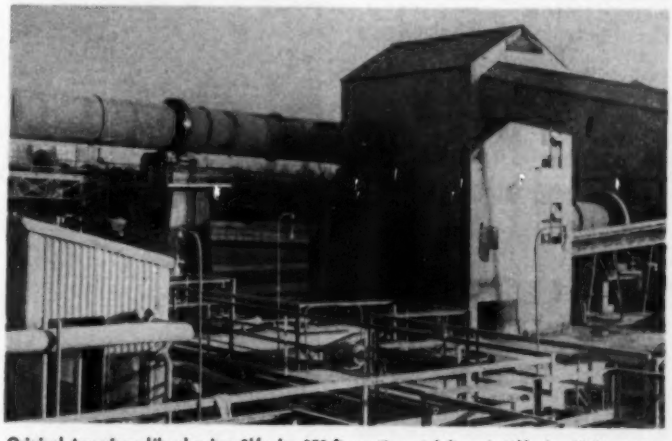
The area from which clay is taken purposely is kept large, so that the scrapers can travel as much as 500 ft. in getting their loads. Further, each cut is made in a down-hill direction so as to secure material from top to bottom in each load; also, the scrapers shift their position from side to side after each load so as to effect the maximum of blending. The degree of blending accomplished in this manner is surprisingly high.

The scrapers dump their 17-cu.

General view of quarry, reject settling pond, and crusher building. The quarry has three marl benches below the overburden.



Preliminary slurry holding tanks. Filling and recirculating valves are located in houses on top of the tanks.



Original two-piece kiln showing 9½- by 250-ft. section at left and 11½- by 85-ft. section at right and 16-ft. tower.

Crusher station in quarry with end dump truck just completing dumping load of marl to hammermill.

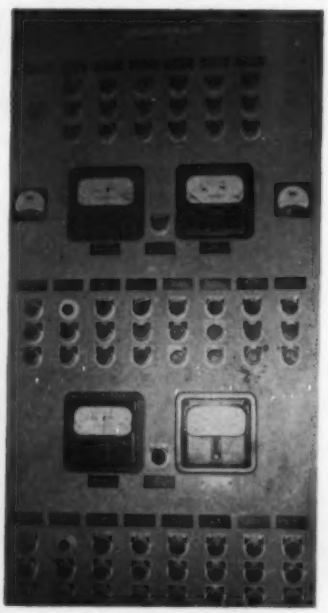
yd. loads on a pile immediately adjacent to the 26-ft. F. L. Smidth wash mill. From this pile, a 1-cu. yd. Sullivan scraper draws the material into the wash mill, where process water from the quarry is used to make a slip of approximately 60 percent moisture.

From the wash mill, a 5-in. Type R Morris pump elevates the clay slip to a surge tank, where a second 5-in. pump transports it to one or both of two 12 in. Dorrclones. (Morris side-suction pumps are used throughout the plant except in one or two cases where existing Wilfley pumps could be fitted in.) The Dorrclones, which look like and operate similarly to one tube of a multitube dust collector, employ a combination of pressure and centrifugal force to effect a very sharp separation of coarse sand and produces a 70 to 75 percent moisture clay slip of acceptable chemical analysis. The 5-in. Morris pump feeding the Dorrclones is equipped with a variable speed motor; so the pumping rate and the pressure in the Dorrclones can, with the help of interchangeable internal parts, effect a separation at any desired particle size and, hence, any level of silica content. The operator in charge of the Dorrclones controls their operation through measurements on the density of the feed and products. A surprisingly uniform product is obtained with the minimum of testing and pump speed adjustment. Twenty-nine t.p.h. of clay are produced with one Dorrclone. Six tons of sand are rejected.

The clay product from the Dorrclones flows by gravity to a former 75-ft. clay thickener which is used merely as a holding and blending tank as the product from the Dorrclones contains appreciable quantities of free silica up to 100-mesh in size. Serious sand segregation occurs if thickening is attempted. The sand rejects, which contain only a small amount of recoverable clay, currently are diluted by a large volume of process water and are pumped back to a worked-out area in the quarry. The water thus pumped back to the quarry eventually is returned to the process water pond for re-use after it has been cleared of clay and sand in the fairly large sand settling pond. In this connection, it might be well to mention that when the quarry is opened up sufficiently, all overburden not usable in making cement will be wasted back into worked-out areas, along with the reject sands.

Provision is made for the reject sand from the Dorrclones to drop immediately into a sand screw, where an additional clay recovery can be effected and clean sand suitable for building purposes can be produced. So far, the sand screw has not been put into operation as certain separation problems have been encountered which will take time to work out.

Primary marl crusher. Motor in top foreground drives rear breaker plate.



Operator's panel in raw grinding department. All equipment in the department is started from this point.

Raw Department The new raw department contains two 8- by 40-ft. two-compartment F. L. Smidth mills each driven by a 1,000-hp. General Electric direct-connected synchronous motor. Over the mills is a 10-ton traveling crane for use in charging the mills and for use when heavy repairs are made. The power input to each motor is measured continuously and is recorded by strip chart wattmeters. This record has proven useful in charging the mills and controlling their operation.

Swivel belt conveyor which distributes marl from quarry to feed hoppers or to storage. The inclined conveyor in the background comes from the quarry.

Each mill has an individual feed hopper of sufficient size to hold a two-to-three-hour marl supply. These hoppers are charged either by a swivel belt, when marl is coming from the quarry, or by a crawler-type crane from an outside storage pile, when the quarry is not in operation. The swivel belt arrangement is somewhat unique. It was devised after the decision was made to defer construction of a marl storage building equipped with a traveling overhead crane. The swivel belt is, as its name implies, a short belt about 25 ft. long, which turns to any of three discharge points. This 30-in. belt receives the marl delivered from the quarry by the main 30-in. belt. The swiveling arrangement is motor-driven and is so constructed that the marl can be discharged to either of the raw mill feed hoppers or over the side of the bins to an outside storage pile. During the day when the quarry is in operation, the feed hoppers are kept full and the excess is spilled over the bin sides. At night or over the weekend when the quarry is not in operation, a 2-cu. yd. P & H crane, equipped with a 2-cu. yd. Blaw-Knox clam shell bucket, charges the feed hoppers with marl from the outside storage pile.

Because of the wet and sticky nature of the marl, secondary crushing is not attempted until immediately before the raw mills. Before each mill is a comparatively small hammermill with a full set of grate bars set to reduce the 3-in. top size feed to minus ¼-in. Clay slip is fed to the hammermills along with the marl to wash the material through the grate bars. Otherwise, the hammermills would plug immediately.

The marl is fed to each hammermill by means of a 42-in. pan feeder extending under almost the entire length of the hoppers. The hopper bottoms have a slope in excess of 60 degrees, with the opening onto the pans 12 ft. long by 36 in. wide. This has prevented arching and sticking and also permits virtually complete emptying without any effect on the feed rate. The pan drives include Reeves variable speed reducers, so that a wide range in feed rate can be obtained without change in feed gate settings.

Clay is fed from two adjacent 24-ft. 2-in. diameter by 28-ft. high clay holding tanks through individual Traylor ferris wheels. One transfer of clay a day from the 75-ft. clay holding basin at the clay processing station to these tanks is sufficient for normal operations. The clay tanks are equipped with Dorr mechanical agitators, which are supplemented by a moderate amount of air agitation.

Two wet cyclones which remove excess coarse silica from clay slip.

Through the use of the hammermills immediately in front of the grinding mills, it was possible to charge the first compartment of each mill with one-half 2-in. balls and one-half 1½-in. balls. In the second compartment 1-in. balls are used as the slurry is quite viscous. The moisture content has to be held at 42.5 percent or higher to keep the slurry pumpable.

It now appears that even smaller balls could be used in the first compartment if the hammermills are to be continued in operation since it has been found that with the ball charge as now employed the hammermills are not needed. Consequently—for the time being, at least—the rotors and grate bars have been removed and the 8- by 40-ft. mills are allowed to do all the grinding.

Slurry Handling The original 5,400-bbl. storage capacity was increased by the addition or (1) two 1,000-bbl. concrete preliminary holding tanks, (2) two 1,000-bbl. concrete kiln feed tanks, and (3) the conversion of a former 110-ft. clay thickener to a kiln feed storage basin. The total slurry storage capacity now is 17,500 bbl., or over three days' supply. The flow of slurry is from the raw mills to any one of the nine original 400-bbl. preliminary holding tanks or to the two new 1,000-bbl. preliminary holding tanks. From these the material is pumped to and mixed in the former No. 1 kiln feed tank of 1,800-bbl. capacity. From this tank the blended material either can be discharged directly to the 110-ft. basin or be pumped directly to the kiln feed tanks.

In operating this system the preliminary holding tanks are filled in sequence, with no attempt to accomplish any blending among tanks. Each tank, when filled, is recirculated by means of a 6-in. Morris pump until mixed sufficiently to permit securing a reliable sample. The recirculation is supplemented by a modest amount of air agitation. Slurry from two to four tanks is then combined in the 1,800-bbl. mixing tank to secure a kiln feed mix. However, should the analysis fail to be exactly as desired on the first attempt, an additional amount of slurry may be added as a final correction. Thus, a desired holding point can be maintained within very narrow limits.

The ability to discharge the blended material either to the 110-ft. basin or directly to the kiln feed tanks permits considerable flexibility in changing types of cement. A further degree of flexibility results from the fact that emergency blends can be made in the original holding tanks and pumped directly to the kiln feed tanks.

The original 110-ft. clay thickener was converted to a holding basin for kiln feed merely by replacing the smaller withdrawal pumps with 6-in. Morris pumps and by providing a somewhat unusual recirculating system. The recirculating line consists of an 8-in. pipe (stepped down to 6 in. half way around) going completely around the periphery of the basin. Three-in. discharge ports are located every 20 ft. No air agitation is provided as the rake driving mechanism is so constructed that it was virtually impossible to install the necessary lines. Recirculation is continuous except for the periods of pumping to the kiln feed tanks. While the rake mechanism is slightly on the light side for this service, the system has worked well, providing approximately, 9,500 bbl. of added slurry storage at no great cost.

All of the valves in the 8-in. filling and recirculating lines of the preliminary holding tanks are grouped at two points, where they are enclosed in steel frame and cement asbestos siding buildings for protection during freezing weather. All suction lines to the pumps are 10 in.

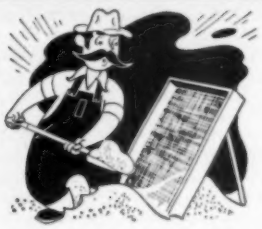
Kiln Department An 11-ft. 3-in. by 425-ft. F. L. Smidth kiln was added to supplement the 2,000-bbl. production of the original 9-ft. 6-in. by 11-ft. 6-in. by 335-ft. two-piece kiln.

Both kilns are fired with No. 6 fuel oil. The original kiln (No. 1) is fired by a Coen high-pressure burner system, and the new kiln (No. 2) is fired by a Schutte-Koerting system. Both kilns are equipped with Fuller coolers, that of No. 1 being a 7- by 33-ft. and that of No. 2 a 7- by 44-ft. unit.

At present each kiln has an independent exhaust gas stack, but the new 13- by 175-ft. Custodis stack

(*Continued on page 98.*)

Screenings



by William M. Avery

OF all the daffy and totally unrewarding activities we have dabbled with lately, the daffiest and least rewarding by far has been our self-assigned task of trying to reconcile some of the widely divergent predictions of business activity in 1953. It's the sort of task you can't struggle with for very long without finding yourself in complete agreement with the bloke who said that if all the economists were laid end to end, it would be a damned good idea.

Anyhow, we were having a pretty sticky time of it when the *Kiplinger Washington Letter* for December fell into our hands. Mr. K. not only straightened us out regarding 1953,

but threw in a quick, though by no means reassuring, squint at '54 and '55. Wrote he: "Pretty good business in '53. Not as good in '54. Slide in '55." We feel obliged to pass this precise bit of economic forecasting along to our readers in order that they, like ourselves, can immediately concentrate their major efforts on such activities as might conceivably have some effect upon what happens in 1956. Obviously there isn't a whole lot we can do about the next three years.

According to Mr. K., the "pretty good, not as good, and slide" outlook is now the "standard pattern of thinking of nearly all economists, both those in government and those attached to business." If this single-minded opinion can somehow be translated into an equally single-minded purpose, it ought to be duck soup for the boys to make the prediction work out, particularly in view of the fact that they haven't really tied themselves down very much.

The letter *does* leave one ray of hope, though it's a pretty dim one. It notes that some of the boys differed a little on "details of timing", which could be interpreted as meaning that although they all agreed on the pattern, half of them thought they were discussing prospects in some other decade. If it comes to that, it wouldn't surprise us *too* much to learn that the other half thought they were predicting the pennant prospects of the Cleveland Indians.

Safe on All Thirteen!

WE had somehow hoped that the chlorophyll-addition epidemic might run its course without infecting any of our industries, but apparently it wasn't meant to be. At any rate a more-than-usually cryptic press clipping which landed on our desk the other day states that a cement has been developed which inhibits undesirable odors. If your customers insist that the concrete you've been sending them stinks, we suggest that you look into this. It may just be that the cement you're using isn't dainty.

Put Her There, Boy!

THE Army has just announced the development of a small nonmetallic land mine which "weighs only 4½ ounces and can be carried in the palm of the hand". What a boom *that* lit.le device is bound to cause among practical jokers.

Strange Bedfellows

WHETHER or not gold and diamonds may properly be regarded as by-products of the gravel industry, there must surely be some significance in the frequency with which the terms have been linked together in the news of late. For example, not long ago a youngster picked up what he thought was a piece of gravel on a north Georgia road; it turned out to be one of the largest placer gold nuggets ever found in the state.

Then there were stories a while back about a road near Pyongtaek, Korea, which American military engineers surfaced with gold ore under the mistaken impression they were using gravel. We understand the

Communists are still using this incident as an example of the dissolute opulence of American imperialists.

Finally *Life* magazine came along with a report of the sale (for $420,000) of a 770-carat diamond dug from a gravel bed in British West Africa. Fully aware though we are that such incidents are not matters of daily occurrence, they somehow contrive in our judgment to lend an air of glamour to an otherwise pretty earthy business. In fact, if there just weren't so all-fired many other things to do, we wouldn't mind struggling with our insomnia for a while in that old West African gravel bed.

It's Clean, Anyhow

WITH thanks to the Go-Corp *Gossip*, the following squib is reprinted for the benefit of those who are about to embark on the winter round of conventions.

Small Boy: "Say, Dad, what's it mean when it says a man went to the convention as a delegate at large?"

Dad: "It means his wife didn't go with him."

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Presidential Inauguration Highlights Second Annual N.A.L.I. Convention

THE National Agricultural Limestone Institute, a progressive organization formed a little over a year ago by the merger of the Agricultural Limestone Institute and the National Agricultural Limestone Association, held its second annual convention January 18-21, 1953, at the Statler Hotel, Washington, D. C.

By KENNETH A. GUTSCHICK

Considered by itself, the meeting was another great success; but coupled with the Presidential Inauguration held on January 20 and the fact that President Eisenhower and his family occupied the presidential suite of the Statler Hotel prior to the inauguration, the convention was a never-to-be-forgotten affair. Thus, the attending N.A.L.I. members not only participated in a worth-while meeting, but also viewed one of the most impressive inauguration ceremonies and parades in history.

The convention was featured by a record attendance, a well-balanced program, and varied social activities. Nearly 600 producers, manufacturers, and guests, representing 37 states, attended the gala Washington affair. The program included a panel on promotion and selling and talks on percentage depletion, grasslands farming, soil conservation, and other topics of interest to agricultural limestone producers. The program was highlighted by addresses given by officials of the Department of Agriculture and the Bureau of Internal Revenue. The panel on operations scheduled for Tuesday was cancelled in order to allow the members to join the cheering crowd of 750,000 persons in viewing the inauguration.

The entertainment activities included two luncheons, a buffet-dance, and the annual reception and banquet. At one luncheon meeting the group was pleasantly entertained by Edward McFaul, Chicago, an outstanding after dinner speaker. The annual banquet was the highlight of the social program. It was attended by about 500 persons, including more than 100 congressional and governmental guests. Senator Wayne Morse (Oregon) addressed the banquet group on the timely subject — *National Defense of Our Soil.* The ladies attending the convention also participated in various activities, including tours of Washington, shopping trips, luncheons, and the annual banquet.

Opening Session The convention began Monday morning with an important business session, which was presided over by Robert M. Patton, N.A.L.I. president. Mr. Patton proudly reported that the association had grown tremendously in the past year, reaching a total membership of 342, including 265 agstone producers, 51 distributors, and 26 manufacturers; 37 states are now represented. He expressed the belief that the membership would attain 400 by 1954.

The highlight of the opening session was the annual report given by Robert M. Koch, executive-secretary, N.A.L.I., in which Mr. Koch discussed the various activities and accomplishments of the national association on behalf of the agricultural limestone industry. He stated that the recent merger of the two former national agstone associations into the N.A.L.I. has been effected very smoothly, and that the rapid growth of the institution is exceeding all expectations. Mr. Koch then discussed recent developments concerning price control, percentage depletion, Agricultural Conservation Program budget appropriations, and other important items.

One outstanding development reported was the complete decontrol by the OPS of sales of agricultural liming materials, which was made effective January 14, 1953. This development was especially significant considering that the agstone industry is the only industry of such large size being granted decontrol by the OPS.

Mr. Koch stated that the association was successful during 1952 in

N.A.L.I. officers for 1953—Alvin R. Armbrust, Fayette Limestone Company, Washington, C. H., Ohio, treasurer; K. K. Kinsey, Concrete Materials and Construction Company, Cedar Rapids, Iowa, president; and John M. Deely, Lee Lime Corporation, Lee, Mass., vice-president.

Robert M. Koch, executive-secretary of N.A.L.I., and Robert M. Patton, New York Coal Sales Company, Columbus, Ohio (retiring N.A.L.I. president), spoke at the opening business session.

getting the Bureau of Internal Revenue to allow fiscal year companies to obtain percentage depletion allowance beginning January 1, 1951, the same date that calendar year companies began to receive the allowance. He further declared that the association's percentage depletion committee was very active during 1952 trying to obtain a full 15 percent depletion allowance for agstone producers. However, the committee's success will not be known for a short while.

Mr. Koch reported that the N.A.L.I. farmer opinion surveys and other efforts were instrumental in having the A.C.P. for 1952-53 approved without a cut and the 1953-54 program authorized at $250,000,000 in spite of the strong attack made by the National Grange and the American Farm Bureau Federation. It is expected that this year's appropriation will be approved by Congress without any cuts.

With the new administration in power, however, Mr. Koch hesitated to forecast the future of the A.C.P. He strongly emphasized that the agstone producers would continue to have two prominent fights on their hands: first, in view of the expected government economy drive that the next year's A.C.P. appropriation would not be cut, and second, that there would be no de-emphasis on the relative role to be played by agricultural limestone and other recurrent-type practices *versus* permanent-type conservation practices. He felt that the P.M.A. organization would remain essentially the same for at least a year, although there would be a change in the administration officials. On the other hand, Mr. Koch mentioned a rumor in Washington that the A.C.P. and S.C.S. might possibly be merged in the near future.

It was also reported by the executive secretary that the N.A.L.I. would no longer hold any mid-year meetings and that the 1954 annual convention would be held at Chicago in conjunction with the machinery exposition of the National Crushed Stone Association.

Mr. Koch also stated that the association has continued to be active in promotional work, distributing over 100,000 agstone promotional leaflets to its members during 1952. In addition, the association now has a total of 3,000 newspapers on its mailing list, having added over 500 in 1952. These newspapers receive four N.A.L.I. news releases each month.

During the morning session the agstone group paid a standing vote of thanks to the executive committee, the officers, the board of directors, and the executive secretary for their outstanding work in 1952.

Officers and Directors In selecting their officers, executive committee, regional vice-presidents, and the 60-man board for 1953, the N.A.L.I. members again gave excellent representation to nearly all agstone-producing sections of the United States. Elected to guide the affairs of the national organization are the following:

K. K. Kinsey, Concrete Materials and Construction Company, Cedar Rapids, Iowa, president; John M. Deely, Lee Lime Corporation, Lee, Mass., vice-president; Robert M. Koch, Washington, D. C., executive-secretary; Samuel Omasta, Washington, D. C., assistant executive-secretary; and Alvin R. Armbrust, Fayette Limestone Company, Washington C. H., Ohio, treasurer.

Regional vice-presidents named were: Leonard S. Fry, Penn., Region I; Philip E. Heim, Ohio, Region II; Sam Davis Bell, Tenn., Region III; J. Larry Fay, Ill., Region IV; and John J. Stark, Kans., Region V.

Members of the 1953 executive committee include the following: (re-elected) Arthur R. Alvis, Butler, Mo.; Harry E. Battin, Jr., South Bethlehem, N. Y.; Earl L. Hecka-

By holding the convention at the Statler Hotel, the agstone members rubbed shoulders with President Eisenhower. In this view the president and his wife, closely guarded by the Secret Service, are shown leaving the Statler, their living quarters prior to the Whitehouse, for the inauguration ceremonies.

Part of the crowd of 750,000 that witnessed the start of the Inauguration Day parade.

Secretary of Agriculture Ezra Taft Benson passing in review during the parade.

The newly-elected N.A.L.I. board of directors held a breakfast meeting on Tuesday.

thorn, Delphi, Ind.; K. K. Kinsey, Cedar Rapids, Iowa; Horace C. Krause, St. Louis, Mo.; J. B. Mount, Shouns, Tenn.; Clarence A. Munz, Utica, N. Y.; Robert M. Patton, Columbus, Ohio (retired president); John H. Riddle, Marion, Kans.; and (newly elected) W. S. Black, Quincy, Ill., and William E. Stone, Piqua, Ohio.

Members of the board of directors were elected on a regional basis, with each of the regions possessing a number in proportion to its agricultural limestone production. One third of the board will serve for one year, one third for two years, and one third for three years. The following is a list of the 60-man board of directors, listed according to regions and length of term:

Region I: (one year)—Harry E. Battin, Jr.; John M. Deely; William E. Horne, Newton, N. J.; Charles Rich, Swanton, Vt.; F. Grove White, Stephens City, Va.; W. Litteer, Pa. —(two years) William F. Childs, Towson, Md.; Leonard S. Fry; Clarence A. Munz; Fred E. Roberts, Norristown, Pa.; F. E. Wholaver, Bellefonte, Pa.; Dana G. Farber, Franklin, N. J.—(three years) William J. Clark, Munnsville, N. Y.; D. H. Henderson, Hamilton, Ontario, Canada; John R. Rice, Buchanan, Va.; John H. Wagner, Meadowview, Va.; M. J. Wurtenberger, Lockport, N. Y. and Knott C. Rankin, Rockland, Maine.

Region II: (one year)—Ralph S. McCrea, Muskegon, Mich.; Earl P. Holwadel, Cincinnati, Ohio; N. E. Kelb, Indianapolis, Ind.; Verne C. Morgan, (retiring treasurer) Louisville, Ky.; J. E. Ott, Bay Port, Mich. —(two years) W. H. Margraf, Columbus, Ohio; Elizabeth Gray, Princeton, Ky.; Lynn Stewart, Columbus, Ind.; W. E. Stone; A. K. Hausmann, Cleveland, Ohio. —(three years) Robert M. Patton; Alvin R. Armbrust; Clete Broecker, Kentland, Ind.; Mrs. Stanley Pace, Burkesville, Ky.; Earl L. Heckathorn.

Region III: (one year)—B. F. Taylor, Cowan, Tenn.; Joseph J. Griesemer, Billings, Mo.; M. M. Green, Carrollton, Mo. — (two years) Russell W. Hunt, Neosho, Mo.; W. Ray Clark, Plattsburg, Mo.; Sam Davis Bell, Nashville, Tenn.—(three years) J. B. Mount; Earl Thomas, Sedalia, Mo.; Arthur R. Alvis.

Region IV: (one year)—K. C. Ruedebusch, Mayville, Wis.; Maurice H. Greenberg, Joliet, Ill.; W. J. Stoffel, Chicago, Ill.—(two years) Charles Coburn, Waukesha, Wis.; William E. Hewitt, East St. Louis, Ill.; Winthrop L. Bryan, Shakopee, Minn. — (three years) Horace Krause; J. L. Fay, LaPorte, Ind.; W. S. Black.

Region V: (one year) —L. R. Falk, St. Ansgar, Iowa; Floyd H. Millen, Farmington, Iowa; Robert H. Schneckloth, Lowden, Iowa.—(two years) H. C. Gray, Tulsa, Okla.; K. K. Kinsey; John H. Riddle.—(three years) William D. Dillon, Columbus Jct., Iowa; Robert J. Pleasant, Tulsa, Okla.; Paul E. Thompson, New Braunfels, Texas.

R. Willis Stout used various props in demonstrating the value of agriculture limestone in grassland farming.

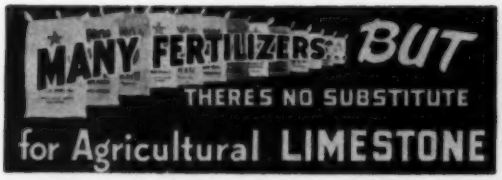
Grasslands Agriculture During the Monday afternoon session, R. Willis Stout, soil editor of the "Kentucky Farmer", and a leader in the National Grasslands Program, spoke to the group on the subject: *Agricultural Limestone in the Grassland Economy.* His main point was that agricultural limestone is the key to and the agent of efficient production in a successful grasslands farming program.

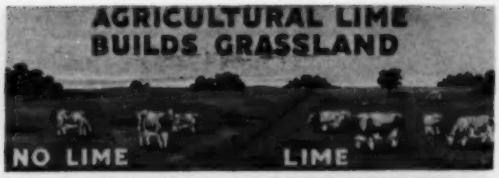
In developing his thesis Mr. Stout first pointed out the tremendous role that grasses play in the world economy, first by supplying indirectly a great variety of vital foodstuffs and then by helping to build up and to conserve the soil. By developing sound grassland practices, Mr. Stout claimed a farmer would meet his principal challenge—that of producing foodstuffs not only at a profit for himself but also at a price that the public can afford to pay.

According to Mr. Stout, agricultural limestone occupies the key middle position between a good healthy grass crop and the farmer's stable dollar. Although furnishing valuable-plant food in the form of calcium and magnesium, the main value of agstone lies in its correcting soil acidity. By bringing the soil to a neutral pH level of between 6.5 and 7.0, an ideal condition is created in which millions of bacteria can thrive and render the soil more fertile. Mr. Stout explained that these bacteria convert mineral plant-food elements into an organic form so they can be taken up and used by plants. They also convert organic material into soil humus, fix nitrogen from the air, impart a granular texture to the soil, and upon dying they themselves become humus and available plant food. Under acid conditions these bacteria will not work efficiently.

Mr. Stout drove home his thesis graphically by displaying a series of beautiful Kodachrome slides of his farm in Jefferson County, Ky.

Inauguration Day Bowing to the march of history, the Panel on Operations, scheduled for Tuesday, was suspended so that the convention group could watch the inauguration of





The six billboard posters shown above were prepared by the Iowa Agricultural Limestone Association to be used by Iowa producers for the 12 month period beginning November 1, 1952. Each poster, which is used for a two-month period, has the producer's name at the bottom.

President Eisenhower and the parade that followed. The panel was scheduled to have been conducted by Leo Davis, New York Coal Sales Company, assisted by M. R. Ackland, Stoneridge Limestone Company; George W. Mintz, Michigan Limestone and Chemical Company; and Rollie Schneckloth, High Test Lime Company.

The N.A.L.I. headquarters staff were fortunate in obtaining a considerable number of seats for the inaugural parade for the agstone producers. However, most of the members present elected to watch the historic ceremonies and parade over the television sets in the convention headquarter's suite or in individual rooms.

Panel on Promotion One of the principal features of the convention was the Panel on Promotion held Wednesday morning. It was presided over by chairman of the promotion committee, William E. Stone (Piqua Stone Products Division, Armco Steel Corporation, Piqua, Ohio), and assisted by Leonard Fry (Fry Coal and Stone Company, Mercersburg, Pa.). Various advertising and promotional activities of the N.A.L.I., individual state groups, and member firms were discussed by the panel. Participants included Louis Dushek, William C. Gerhart, Floyd H. Millen, Clint A. Allen, and Earl P. Holwadel.

Mr. Stone opened the panel by stating that the agricultural limestone industry is falling far short of selling America's farmers the vast amount of limestone needed to bring the nation's soil to a healthy state and to maintain that condition. The "dollar appeal" doesn't seem to be enough, he declared. Although it has been proven conclusively that for every dollar a farmer spends for agstone he gets back from $2 to $8, only a relatively small proportion of farmers have been sold on agliming. He pointed out that this is a serious problem, especially in the face of possible cutbacks in the government support program, the weakening of farm prices, and the possible slump in farmer buying power in sight.

William E. Stone, Piqua, Ohio, directed an excellent panel discussion on promotion and selling.

Since the dollar appeal has been rather unsuccessful, Mr. Stone suggested that possibly the agstone producer can appeal to the farmer's pride or to his security for the future or to some other vulnerable point. However, he admitted that an answer had not been found yet.

Louis Dushek (Callanan Road Improvement Company, South Bethlehem, N. Y.), one of the two company-employed agronomists on the promotion panel, discussed the role of the agronomist in promoting agstone use. He stated that the main function of the agronomist is to convince the farmer of the value of liming. In discussing the function of lime in agriculture, Mr. Dushek pointed out that its main value lies in neutralizing acid soils, which enable most crops, particularly the forage crops to attain maximum growth. He also presented experimental data which showed to what a large degree the nutritional value of crops is largely dependent upon the type and fertility of the soil.

As a means of getting educational information across to the farmer, Mr. Dushek suggested that limestone producers maintain close relationship with county agricultural agents, state agricultural colleges, and agricultural extension staffs. In addition he urged the limestone producer to join forces with fertilizer companies in combined advertising programs, which would be based on the

Present at the Monday luncheon were Jules E. Jenkins, Vibration Measurement Engineers, Chicago; W. S. Black, Black White Limestone Company, Quincy, Ill.; Mr. and Mrs. N. F. Schwarz, Pontiac Stone Company, Pontiac, Ill.; E. C. Farrar and H. I. Phemister, American Cyanamid Company, Pittsburgh, Pa.

fact that fertilizers are not very effective if soils are acid. He also said that if a producer was unable to hire a full-time graduate agronomist, it would be worthwhile for him to at least enlist the services of local young talent on perhaps a part time basis.

William C. Gerhart, agronomist (Fry Coal and Stone Company, Mercersburg, Pa.), demonstrated the duplex indicator and the tissue testing method — two simple standard methods he uses in the field to determine lime and fertilizer requirements of soils. He stated that he generally performs the soil tests in the farmer's presence, and that this added personal touch has aided considerably in promotional work.

Mr. Gerhart also showed a series of slides illustrating a classic laboratory experiment recently conducted at Pennsylvania State College which pointed out the tremendous value liming has on growth of various plants, particularly grasses. The tests clearly demonstrated that maximum plant growth (of both root system and foliage) is attained when (1) a combination of aglime and fertilizer is used (in proper amounts), (2) finely ground (100 mesh) agstone is used rather than coarse (10 mesh) agstone, and (3) the liming material and fertilizer are distributed evenly throughout the soil.

He stated that as a means of educating the farmer on the value of liming, his company publishes an educational, non-advertising bulletin entitled *Soil Builder*. He urged that limestone producers stress this educational phase of a promotion, as well as applying a personalized approach to selling their product.

Floyd H. Millen (Valley Limestone and Gravel Inc., Farmington, Ia.) and Clint A. Allen, executive-secretary of the Iowa Agricultural Limestone Association, repeated their contribution made at the 1952 annual meeting by describing their experience with billboard advertising. They stated that this type of advertising has proved to be very economical and effective and has consequently found wide use throughout Iowa. They labeled it the "lazy man's" method of advertising, since once the billboard poster is installed, the advertising remains visible 24 hours a day and throughout the year.

Six billboard posters are prepared and made available by the Iowa association yearly, each one to be displayed for a two month's period. The total average cost is slightly less than $1 per day. Each producer in the state uses the same poster, with the exception that each company's name and address is placed at the bottom.

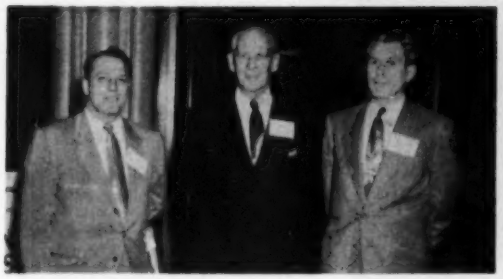
The agstone group was shown color miniatures of the 1953 series of billboard posters, as well as a full-size (12-ft. x 25-ft.) sample poster. Mr. Allen reported that nearly all Iowa producers using this form of advertising rent the billboard space on a yearly basis; in this way they are assured of the same location throughout the year. However, three Iowa producers have constructed their own billboards, each costing about $250.

Earl Holwadel (Ohio Gravel Company, Cincinnati, O.) also gave a repeat performance of the 1952 convention by discussing his company's experience in newspaper advertising used in combination with photographs. He displayed a variety of advertisements that have been very effective in promotional work. The majority of the ads used the personalized approach, in which individual farmers quote their experience with liming materials; each ad brings out the simple point that liming really pays off. Mr. Holwadel stated that his company attempts to tie in the use of agricultural limestone with all types of farming activity, including dairying, cash grain, poultry raising, etc.; in this way nearly all types of farmers are reached.

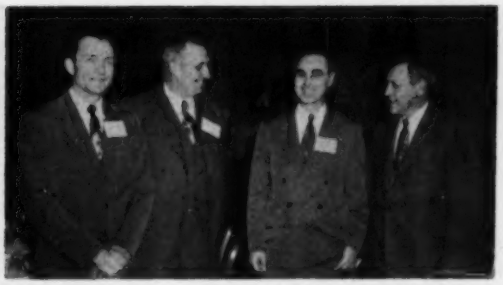
The scheduled speaker on radio advertising was unable to attend; however, several members in the audience related their experiences in that field of promotion. W. H. Margraf (Marble Cliff Quarries Company, Columbus, Ohio) reported that his company sponsors a 15 minute program at 7:15 a.m. every day, which is devoted largely to the presentation of farming news and facts. Another agstone producer using radio advertising is Whiterock Quarries, Bellefonte, Pa.; according to Glenn Hawthorn, Whiterock sponsors a daily five minute news program at 7:30 a.m. over a small local radio station. He said that although not much time can be devoted to advertising because of the short length of the program, nevertheless the program has paid off. Its main value, he commented, lies in keeping the company's name and product constantly in the farmer's mind.

John P. Flynn, Pit and Quarry, New York, and Henry P. Chandler, Bureau of Mines (Construction and Chemical Materials Branch), Washington, D.C.

Robert H. Schneckloth, Lowden Rock Products Company, Lowden, Ia., and Harry A. Wendler, Highway Equipment Company, Cedar Rapids, Ia.



Paul E. Thompson, Servtex Materials Company, New Braunfels, Tex.; Horace Krause, St. Louis, Mo., who spoke on percentage depletion; and Clete Broecker, Newton County Stone Company, Inc., Kentland, Ind.



Louis Dushek, agronomist, Callanan Road Improvement Company; Alfred Jennings, Mechanicville, N.Y.; H. L. Manwaring, U.S.D.A., Washington, who addressed the luncheon group; and George W. Mintz, Michigan Limestone and Chemical Company, Buffalo, N.Y.

Mr. Stone then briefly discussed direct advertising methods used by his company and also the work in this field by the N.A.L.I. He reported that advertising literature sent through direct mail by his company includes humorous poems, blotters, information circulars, and also N.A.L.I. literature.

Also discussed at the promotion panel was the subject of spreading. Since much of the success of agliming depends upon the use of efficient spreading equipment, it was recommended that producers check their hired truckers' equipment regularly to see that it is in top shape. Indication of the value of spreading is the fact that several producers reported that they include truckers in their regular sales meetings.

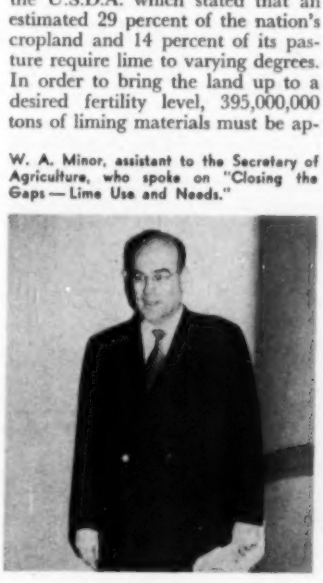
Department of Agriculture Two U.S.D.A. officials gave very important talks at the luncheon and afternoon session of the last day of the convention. H. L. Manwaring, assistant deputy administrator for production in the P.M.A., addressed the luncheon group on the job of agriculture in the future. A "last minute" replacement for the scheduled speaker, Gus Geissler, administrator of P.M.A., who resigned from his post before the convention began, Mr. Manwaring did an excellent job. He stated that the main objective of the U.S.D.A. was "to obtain an abundant and uniform supply of food and fiber for the enrichment of all sections of our growing nation."

The need for expanding agricultural production, he stated, is based on the rapidly growing population of the United States and the significant increase in our standard of living. He claimed that we now eat 11-12 percent better than during prewar years, and that in the next few years our domestic food consumption will rise to about 40 percent.

To meet this inevitable huge demand on agriculture it will be necessary, he declared, to expand our soil building and soil conservation practices considerably. He hoped that the agstone producers would be able to play an even greater role in the country's future soil conservation programs, since at the present time only about one-half of the lime that is needed for maintaining the soil at its present level (not for building it up) is being used each year.

Another important message to the N.A.L.I. group was given during the Wednesday afternoon session by W. A. Minor, assistant to the Secretary of Agriculture and chairman of the U.S.D.A.'s Fertilizer and Lime Use Program. He spoke on the subject *Closing the Gap-Lime Use and Needs.* Mr. Minor began by stating that the gap between lime use and needs is a serious challenge to the nation and that there is urgent need for immediate planning to combat the problem. He reported on a recent American farm survey of the U.S.D.A. which stated that an estimated 29 percent of the nation's cropland and 14 percent of its pasture require lime to varying degrees. In order to bring the land up to a desired fertility level, 395,000,000 tons of liming materials must be applied; then to maintain the land at that proper level, an additional 47,000,000 tons are needed each year.

W. A. Minor, assistant to the Secretary of Agriculture, who spoke on "Closing the Gaps — Lime Use and Needs."



Like Mr. Manwaring, the speaker emphasized the rising demands on agriculture in the immediate future necessitated by our rapidly expanding population (increasing 2,500,000 each year) and our increase in standard of living. To meet the burden to be placed on our farmers and our soils, Mr. Minor advocated the more efficient use of fertilizer and lime in order to increase food and fiber production, the building up of farm productivity by means of integrated, improved farming methods, and the increasing of net returns to the farmer.

Regarding conservation practices, Mr. Minor strongly emphasized the point that for best results a coordinated conservation program is needed, in which lime, fertilizers, and a multitude of other desirable practices may each play a major role, depending upon the specific physical conditions of each agricultured plot.

As means of promoting the greater use of liming materials, Mr. Minor suggested that farmers be supplied more educational information that stresses the value of liming practices. This information could be disseminated by land grant colleges, radio, newspapers, and other media. In addition he urged that research projects on conservation be expanded, that more demonstrations be encouraged on a local level, that more soil and plant tests be made to determine the qualitative and quantitative mineral needs of a soil, and that more information be gathered regarding the costs and returns from fertilizing and liming practices.

Percentage Depletion Two timely talks on percentage depletion were given Wednesday afternoon — one by Horace C. Krause (Columbia Quarry Com-

pany, St. Louis), chairman of the N.A.L.I. percentage depletion committee, and the other by Delbert Williams, Natural Resources Section of the Bureau of Internal Revenue, Washington.

Mr. Krause reported that the percentage depletion committee, which includes Earl Heckathorn, William E. Horne, Charles Rich, and Vincent Shea, appeared before the Bureau of Internal Revenue late in December and presented the agstone industry's case for obtaining a full 15 percent percentage depletion allowance. How successful the committee's efforts were will not be known probably until February, when the Bureau of Internal Revenue is expected to release its final interpretation of the percentage depletion regulation on non-metallic minerals.

In reviewing the recent activities of the percentage depletion committee, Mr. Krause reported that the committee was successful in having fiscal year companies receive the same benefits as calendar year companies. In addition, the committee was instrumental in clarifying the current regulation's description of the "process step" involved in crushed stone production.

Regarding the subject of depletion in general, Mr. Krause recommended that companies showing a net annual loss should request a cost depletion rather than a percentage depletion allowance, and companies showing a profit, the reverse. He stated that the allowance is applied to the property's gross income but that it must not exceed 50 percent of the net income. In answer to the question who may take percentage depletion, Mr. Krause stated that owner-operators, lessors, and lessees are entitled to the allowance, provided that they have an economic interest in the property. In this regulation each quarry is considered separately and the allowance must be filed for separately.

In conclusion Mr. Krause urged all members to read the timely editorial on percentage depletion appearing in the December issue of PIT AND QUARRY.

The N.A.L.I. was very fortunate in having Mr. Williams of the B.I.R. enlighten its members on the intricate problems involved in the interpretation of the percentage depletion regulation (Revenue Act of 1951). The speaker first gave an historical account of mineral depletion allowance in the United States, stating that a form of cost depletion was allowed in the case of mines in 1913. This was followed by percentage depletion for oil and gas in 1926;

K. K. Kinsey, Mrs. Robert M. Patton, Senator Wayne Morse, Oregon, the featured speaker at the annual banquet, and Robert M. Patton chat at the banquet reception.

coal, sulphur, and metal mines in 1932; fluorspar and asphalt in 1942; and a list of 33 non-metallic minerals, including limestone and dolomite, in 1951. Mr. Williams stated that the early tax regulations involved cost depletion, which was based on discovery value of the mineral property. Due mainly to the inequity of taxes resulting from this method, cost depletion was replaced by percentage depletion, which is based on the gross income of a property.

In interpreting the Revenue Act of 1951, the B.I.R. encountered numerous complex problems, mainly because the act involves a large number of minerals, many of which occur in a variety of natural forms or have a variety of end-uses. Mr. Williams discussed a few of the minerals which have created the most complex problems. Heading the list was stone, particularly limestone and dolomite; others included various evaporite deposits like salt, potash, and borate compounds; bauxite; and granite and aplite. The two last mentioned rock-types furnish an excellent example of the difficulties involved. According to the depletion law, granite takes 5 percent and aplite 15 percent; yet granite and aplite are members in a gradational

Albert Stone and Richard D. Lawlor, Lebanon Limestone Company, Lebanon, Tenn., and W. O. Faylor, Faylor Lime and Stone Company, Middleburg, Pa.

series of acid igneous rocks and actually are not too dissimilar.

Limestone and dolomite present even more complicated problems, since they may vary considerably in purity and also may be used for aggregate, agstone, flux, lime, etc., depending upon such factors as their chemical composition, proximity to a steel mill or lime plant, etc.

Annual Banquet Direct payments from the Federal Treasury to the nation's farmers for the continuance of a program of soil conservation was strongly urged by the convention's featured speaker, Senator Wayne Morse of Oregon, as a thoroughly sound investment in national security. The Senator addressed the annual banquet, attended by over 500 persons.

Among the audience were a large number of Morse's Congressional colleagues from both houses, and many dignitaries from government departments and bureaus, particularly the Department of Agriculture. Several prominent government officials were at the head table, and those introduced to the gathering included Senators Humphrey and Thye of Minnesota, Wiley of Wisconsin, Cooper of Kansas, Murray of Montana, Clemens of Kentucky and Bell of Maryland, and True B. Morse, new Under-secretary of Agriculture.

America's ability to produce and maintain a surplus food potential is one of the greatest weapons in the arsenal of democracy, Senator Morse told the group. Freedom and democracy, historically have been trademarks only of those lands that have had the ability to sustain food potential.

A fertile soil is needed to guarantee this surplus food production, and since this is vital to the defense of our way of life, the cost of it should be borne by all Americans, not merely by the farmer, the Senator maintained. The burden of proper soil conservation, including liming and fertilizing, is the responsibility of all taxpayers and should be borne by direct payments from the treasury, he declared.

At our present rate of population growth, the current maximum farm production will not be sufficient to properly feed the 200-million Americans who will be around here in 1975 — "tomorrow," Senator Morse warned. We have seriously depleted our last frontier, the soil, and we are lost if we do not follow a sound soil conservation program, he said, defining lime as a "basic foundation stone in surplus food productivity."

35th National Slag Assn. Meeting Covers Research, New Developments

THE 35th annual meeting of the National Slag Association was held in the Mayflower Hotel, Washington, D. C., on November 12 and 13, 1952. As usual, the attendance was good and the program interesting. C. A. Barinowski, president, welcomed members and guests and gave a brief resume of conditions in the industry before introducing the speakers.

Fred Hubbard, director of research for the association, presented his report, which summarized the accomplishments of the year and presented preliminary information on projects under way.

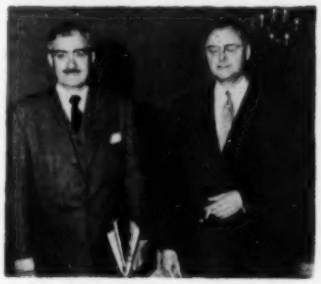
One of the completed projects was a new draft of *Recommended Practice for Selecting Proportions for Concrete Mixes.* This was prepared by a committee of the American Concrete Institute and incorporated suggestions presented by the association for the use of slag in concrete. There are still some points to be checked in this field, and studies are being made on them. It was suggested that the present concrete proportioning tables should be rewritten as a result of the information on hand and that being developed by the present studies.

Work with an A.S.T.M. subcommittee on bituminous concrete specifications has resulted in four new specifications for bituminous mixes which include slag as an aggregate.

Expanded slag studies were covered, and the investigations on the characteristics of the various kinds and their fire resistance were discussed. Among aspects of these investigations were conferences with the Portland Cement Association, tests by the Underwriters Laboratories, and work on specifications with the A.S.T.M.

Other investigations in progress include experiments on corrosion in metal pipes imbedded in slag and other materials, tests on slag for railroad ballast in conjunction with a subcommittee of the A.R.E.A., and the final report on agricultural slag.

E. W. Bauman, managing director of the association, gave his annual report. Among the projects that were handled during the year was the problem of renegotiation. As a result, the slag industry was exempted from the provisions of the 1951 Renegotiation Act. The Portland Cement Association has issued a new set of Concrete Proportioning Tables which contain modifications that are proving beneficial to the use of slag aggregate.



C. A. Barinowski, N.S.A. president (Birmingham Slag Company, Birmingham, Ala.), and R. O. Dierker, N.S.A. vice-president (Duquesne Slag Products Company, Pittsburgh).

The major promotional effort of the year was the preparation of an eight-page catalog on slag for inclusion in more than 29,000 copies of Sweet's services supplied to the construction and architectural fields.

A fruitful project was the work with the Underwriters Laboratories on fire resistance tests of 8-in. bearing walls of concrete masonry units made with expanded slag aggregate. Producers of slag blocks will be able to obtain inspection service as soon as certain formalities have been completed.

The ag-slag fellowships at three universities have been terminated, but the final reports of all have not yet been received. A favorable report on the use of slag for liming has just been received from the Ohio State fellowship and is available for distribution.

Actions to obtain O.P.S. decontrol were unsuccessful, and have been dropped for the present, as it was evident that most members were opposed to an industry earnings survey, as suggested by the O.P.S.

The industry-wide safety competition sponsored by the N.S.A. and directed by the U.S. Bureau of Mines was covered, and suggestions for improving it were made. Other routine activities were also mentioned briefly. Mr. Bauman concluded his report by pointing out that the association includes most of the industry, that membership growth consequently will be slower than in the past, and that emphasis should be placed on obtaining new members from firms entering the slag industry. He mentioned that financial affairs are in very good condition.

At the luncheon, R. O. Dierker, vice-president of the association, presented the guest speaker, Carl A. Carpenter, senior materials engineer, Bureau of Public Roads. Mr. Carpenter cited the need for new research and also for re-examining, from time to time, the data already established. Research is also needed to develop new markets where there is an abundance of slag and to point out the best uses when the supply is short.

(*Continued on page* 100.)

E. W. Bauman, N.S.A. managing director; Fred Hubbard, N.S.A. director of research; George Weiss (Bethlehem Steel Company); and H. N. Snyder (Buffalo Slag Company).

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

LIKE many other enterprises, the business of making predictions about the economic outlook has its busy season. It is concentrated around the end of one year and the beginning of the next. The end of 1952 and the beginning of 1953 proved no exception to the usual pattern except, perhaps, that because there was a somewhat greater uncertainty about the business outlook, the usual predictions assumed added significance.

Most of the early predictions—in late November and early December—saw substantial prosperity through the first half of 1953 but were rather cautious about the latter half of the year. As the prediction season wore on, however, the predictors became increasingly bolder. By the time the newspapers issued their annual financial supplements, shortly after the beginning of the year, there was virtual unanimity on the part of business leaders and government officials that high prosperity was sure to continue through all of 1953. This switch to unanimous optimism may have been based on later and better information or it may just have been the snowballing effect of the later predictors believing the earlier ones and going them one better.

Regardless of the reason, the very fact that so many business leaders are of an optimistic frame of mind and appear to be acting on this basis, is, in itself, a substantial guarantee that a high level of economic activity will continue for some time. The real question now is not so much what will happen in 1953, but rather what are we headed into in 1953 which may not actually come to pass until 1954 or later.

Understandably, on this latter question, most of the predictors were eloquently silent. One responsible group, however, has taken a very careful look into the period beyond the immediate future and has come up with some answers which are based on the best data and analyses that can be made this far in advance of the event.

The report, entitled *Markets After the Defense Expansion*, was prepared by the U. S. Department of Commerce. However, it differed from most government reports in that it included the business viewpoint because it was prepared with the active assistance of a committee of prominent business economists arranged by the Committee for Economic Development, whose membership includes most of America's outstanding business firms. The staff of the Committee for Economic Development participated in the formative stages of the report, reviewed each of its parts in detail before it was completed, and made many valuable suggestions.

First attention was given to expenditures for national security which have played so dominant a role in the level of business activity ever since 1939. Here the best judgment of the economists preparing the report indicated that "total national security purchases are projected to rise from the current annual rate of approximately 50 billion dollars to a rate between 55 billion dollars and 60 billion dollars in the latter part of the calendar year 1953. . . . A high level is likely to be maintained in 1954, but reductions toward the end of that year are possible. For the calendar year 1955 a range of 50 billion to 55 billion dollars has been projected. . . ."

At least for the next few years it appears that these changes in expenditures for national security will be rather small—within the range of 10 percent in either direction. As a consequence, these moderate changes will not provide the basis for either a substantial expansion or contraction of economic activity. It must, of course, be pointed out that these predictions are necessarily based on the assumption that no drastic change will occur in the international situation which will require tremendous expansion in military spending.

The above figures dealt with expenditures for building up the military establishment. In addition, it is likely to cost from 40 to 50 billion dollars a year almost indefinitely to maintain that establishment. This is the likely floor for military spending, regardless of what happens on the world scene.

The report also concludes that state and local government purchases are expected to continue their rise during the next few years. However, it is unable to provide any figures on this subject. It bases its conclusion primarily on the fact that there is a great and growing need for many of the facilities which state and local governments supply, such as roads, schools, and hospitals. With respect to roads, it pointed out that two-thirds of the Federal Aid highway system and half of the non-federal rural mileage is in need of improvement. With respect to schools, it pointed out that an average of 37,000 new classrooms would be needed in each of the next three years just to accommodate the enrollment increases. In addition, there were substantial deficiencies in hospital beds and other public works, such as sewer and water facilities.

Estimates of the cost of these required improvements and expansion are not very reliable; they are meaningless in terms of likely economic activity unless there is some showing that the funds will actually be forthcoming. Only in connection with highway construction is there any indication that funds may be available in 1954 and 1955. Here, as a result of Congressional action covering authorizations for fiscal years 1954 and 1955, federal grants-in-aid to states for new highway construction are scheduled to rise to record rates. These authorizations exceed those for the preceding two fiscal years by about 15 percent. Provided that state and local matching funds are available, the expenditure of the new appropriations and of the unexpended balance of prior year appropriations implies a significant rise of Federal Aid highway construction.

For the purpose of this report, a special survey was made of business plans for capital expenditure after 1953. This survey was limited to large firms. It revealed that in 1954 they expected their capital expenditures to be about 85 percent of the 1952 level, and in 1955 to be about 80 percent of the 1952 level. The expectations were not the same for all types of companies. To quote:

"The large trade companies covered expect to maintain or increase their 1952 rates through 1955. Some of the principal factors determining the investment by these firms were new store requirements arising out of population growth, modernization and relocation of places of business, and competitive conditions.

"The largest reduction in fixed investment schedules are found among both primary iron and steel and primary non-ferrous companies, where

(*Continued on page* 100.)

CUMMINS DIESELS *are engineered to make light work of tough jobs*

Progressive, eyes-ahead engineering is one of the big reasons why so many mine and quarry operators pick Cummins Diesels for dependability.

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CUMMINS

Leaders in rugged, lightweight, high-speed diesel power!

Carolina Giant

(*From page 85.*)

was made large enough to handle the exit gases from both kilns. It is intended at a later date to dismantle the original 110-ft. unlined steel stack of No. 1 kiln.

Exit gas temperatures are 500 deg. F. for both kilns. The fuel efficiency of No. 1 kiln is 1,400,000 B.t.u.'s per barrel and No. 2 1,250,000 B.t.u.'s per barrel, with 42.5 percent moisture slurry. Clinker temperatures after the coolers average less than 125 deg. due to the selection, in both cases, of rather large coolers for the size kilns involved. With very limited and enclosed clinker storage, cool clinker was considered a necessity.

The new No. 2 kiln is driven by a 200-hp. slip ring motor with a 12 point speed range control and is rather highly instrumented. In addition to the usual indicating instruments, there are recorders for the burning zone temperature, the exit gas temperature, the number of revolutions per hour, hood and back end draft, and the temperature of the gases before they enter the chain system. The indicating instruments include those for showing the instantaneous speed of the kiln, the temperature and pressure of the firing oil, and the amperes drawn by the drive, draft fan and cooler fan motors. The kiln now is equipped with a Leeds & Northrup recording gas analyzer. A similar meter is to be installed on the No. 1 kiln.

No. 6 fuel oil is stored in a 1,000,000-gallon tank from which oil is pumped to a day tank in the kiln department. Two No. 60 Cleaver-Brooks boilers, fired by No. 2 fuel oil from a second day tank, supply steam for heating the oil to 250 deg. F. These boilers and the heat exchangers are serviced by the burner helper since the whole installation is located on the burner platform.

Clinker Handling The clinker from both kilns is conveyed by means of drag chains to either of two twin elevators. The product goes either to a third elevator, which discharges into a high 5,000-bbl. surge tank, or directly to a 4- by 10-ft. Hum-mer screen equipped with ½-in. cloth. The plus ½-in. material goes to a Traylor TY 1-ft. 8-in. gyratory crusher. Clinker can, of course, be drawn from the 5,000-bbl. surge tank to the Hum-mer screen so that the entire stream of clinker at one time or the other passes over the Hum-mer screen. The Hum-mer screen fines are spouted directly to a second pair of twin elevators along with the minus ½-in. crusher product.

The elevators which receive the combined screen and crusher product discharge to an 81-ft. 9-in. drag chain equipped with Link Belt SD 21 chain of 9-in. pitch by 16-in. wide links. This drag conveys the clinker to any one of four finish mill feed tanks. Two of the feed tanks have an effective capacity of 1,750 bbl. of clinker each. The two remaining tanks have an effective capacity of 2,400 bbl. each. Clinker is reclaimed from the feed tanks by means of 30-in. Schaffer Poidometers.

Finish Department The department originally consisted of a 9½- by 11-ft. Nordberg open circuit preliminary mill driven by a 450-hp. direct-connected synchronous motor. This was followed by an 8½- by 22-ft. Nordberg mill driven by a 700-hp. direct-connected synchronous motor. This mill was in close circuit with a 16-ft. Sturtevant air separator. To this was added a 9½- by 11-ft. Nordberg mill (formerly used in the old raw department) driven by a 450-hp. direct-connected synchronous motor. The mill is operated as a separate unit in close circuit with a 16-ft. Sturtevant air separator. Circulating loads up to 1,000 percent are contemplated, although this condition has not yet been attained.

The older two-stage grinding circuit was altered by replacing the 14-in. air separator tailing screw with an 18-in. diameter screw of greater length. It is supplemented by a Fuller-Huron Airslide to permit complete close circuiting of the two mills. Circulating load up to 600 percent can be obtained. In both grinding circuits the new feed is controlled by means of Hardinge electric ears.

The older two-stage grinding circuit currently is producing at the rate of 175 bbl. per hour at a power efficiency of 4.9 kilowatts per bbl. of direct-connected horsepower. The newly installed 9-ft. 6-in. by 11-ft. mill presumably will have an even higher efficiency, once the system is stabilized with a high circulating load. It is believed that this mill can produce 75 to 80 bbl. per hour at 4.5 or less kw. per bbl. of direct-connected power.

The products from the air separators of both mill circuits are conveyed to a 7-in. Fuller-Kinyon pump by means of Airslides. This pump conveys the cement to any one of the nine 12,000-bbl. cement silos.

Mills 1 and 2, which comprise the two-stage grinding circuits, can be fed from any one of three of the clinker feed tanks. No. 3 mill can be fed from either of the two feed tanks located nearest to it. Gypsum is stored in a new 700-ton concrete silo from which 20-in. Schaffer Poidometers feed to the two mill circuits.

Packing Department The nine 12,000-bbl. clinker silos are equipped with sloping steel bottoms and are self-cleaning. Cement is reclaimed by 16-in. screw conveyors which carry the cement to twin Hum-mer screens over each of the feed bins of the two four-spouted packing machines. Packaged cement is delivered to freight cars on either side of the packing house by means of a reversible wire belt. Practically all of the bulk cement is loaded out of the side of the silos, although provision is made so that cement elevated to one of the packing machines can be diverted to a screw conveyor extending out over one of the packing tracks.

Electrical System Major alterations and additions were made to the electrical distribution system. This included moving the two 2,500-kv.-a. transformers to a more central location and the construction of a completely new underground distribution system. All of the new load center transformers, switch gear, and starting equipment were supplied by G.E.

From the two 2,500-kv.-a. transformers, which reduce the voltage of the incoming power from 115,000 to 2,300 volts, the current goes to a new pressurized distribution center located adjacent to the raw mill. From there it goes to load centers in the various departments, where transformers ranging in size from 500 to 750 kv.-a. reduce the voltage to 440 volts for the less than 200-hp. motors. Cabinetrol starting equipment was purchased for all of the new motors. In most of the departments Westinghouse operator's panels were installed. Wherever possible, all new motors were totally inclosed.

Personnel The Carolina Giant Cement Company is a wholly-owned subsidiary of the Giant Portland Cement Company. Officers and operating executives include the following: R. M. Craigmyle, chairman of the board and president of the Giant Portland Cement Company and the Carolina Giant Cement Company; John D. Wilson, executive vice-president; and Howard S. Ponzer, vice-president in charge of engineering and development. C. W. McElheny is plant superintendent, and B. K. Garner is chief chemist.

Donald R. Sutherland is vice-president in charge of sales of both companies, and F. J. Cain Jr. is sales manager for the Carolina Giant Cement Company.

Report on Current Labor Developments

City Wage Differences

another P-O exclusive

By S. HERBERT UNTERBERGER

S. Herbert Unterberger & Co.
Industrial and Labor Economists
Washington, D.C. — Philadelphia, Pa.

THE Bureau of Labor Statistics has just summarized its recent wage surveys in 40 of the nation's major labor markets. The combined population of these 40 areas exceeded 52 million, or about one-third of the people in the country. These tabulations provide the most comprehensive view of how widely wages vary among the different cities and the easiest way to determine, generally, how the wages prevailing in any particular city compare with other cities.

The following table shows, for plant workers in indirect jobs and for office workers, the list of cities in terms of their pay levels from highest to lowest. It also shows the percentage by which the pay level in each city is above or below New York. The relative pay levels of plant workers is based on the average hourly earnings in seven maintenance jobs, four custodial jobs, and six warehouse and shipping jobs in each city. For office workers, it is based on the average weekly salaries for 24 office jobs in each city.

The table demonstrates some very significant relationships. For plant workers, clearly, the highest wages are paid on the Pacific Coast, followed by Detroit and Chicago. These cities are followed by a heavy concentration of other Middle West and Middle Atlantic cities, then by New England cities. Finally, the lowest pay is found, not unexpectedly, in the South. The low levels in the South result primarily from the substantially lower wages paid for unskilled and semi-skilled work. For skilled work, the differences are not very great. In the case of skilled maintenance trades, Houston workers' pay was well above average, and pay levels in Jackson, Richmond, and Birmingham also compared favorably with prevailing levels in New England cities and Scranton, Denver, and Salt Lake City. The differences among the cities were substantial, ranging from 13 percent above New York to 31 percent below. For skilled maintenance jobs, the range was much narrower—from 11 percent above New York to only 20 percent below; for warehousing and shipping jobs it was somewhat under—from 13 percent above to 36 percent below; for custodial jobs it was even wider—from 14 percent above New York to 40 percent below.

For office workers, the highest salaries were also paid on the Pacific Coast and in Detroit and Chicago, but the excess over New York was not nearly so substantial. Thereafter, the differences among the pay levels in other Middle Western, Middle Atlantic, New England, and Southern cities followed no clear-cut pattern. Of special interest is the fact that the pay levels in several large Northern cities such as Philadelphia, Boston, and Minneapolis, were below those of many smaller cities and below those of such Southern cities as Houston and Atlanta. However, for office workers, the differences among the cities were far less substantial than for plant workers, ranging only from 6 percent above New York to 21 percent below.

Relative Pay Levels in 40 Major Labor Markets

Plant Workers		Office Workers	
Labor Market	% above or below N.Y.	Labor Market	% above or below N.Y.
San Francisco-Oakland	13	San Francisco-Oakland	6
Detroit	11	Detroit	6
Seattle	6	Los Angeles	5
Los Angeles	5	Chicago	4
Chicago	5	New York	0
Newark-Jersey City	3	Cleveland	−1
Pittsburgh	1	Seattle	−1
Milwaukee	1	Albany-Schenectady-Troy	−4
New York City	0	Newark-Jersey City	−4
Buffalo	−1	Houston	−4
Cleveland	−1	Indianapolis	−4
Minneapolis-St. Paul	−4	Milwaukee	−4
St. Louis	−4	Pittsburgh	−5
Trenton	−5	Buffalo	−6
Kansas City	−6	Rochester	−6
Albany-Schenectady-Troy	−7	Hartford	−7
Rochester	−7	Columbus	−7
Cincinnati	−7	Trenton	−8
Indianapolis	−7	Atlanta	−8
Boston	−8	Cincinnati	−8
Philadelphia	−8	Louisville	−8
Columbus	−9	St. Louis	−8
Louisville	−9	Kansas City	−9
Hartford	−11	Allentown-Bethlehem-Easton	−10
Worcester	−11	Norfolk-Portsmouth	−10
Allentown-Bethlehem-Easton	−11	Phoenix	−10
Phoenix	−12	Boston	−11
Salt Lake City	−12	Philadelphia	−11
Denver	−14	Birmingham	−11
Providence	−15	Denver	−11
Scranton	−16	Minneapolis-St. Paul	−12
Houston	−17	Worcester	−12
Birmingham	−22	Richmond	−12
Richmond	−24	Memphis	−14
Norfolk-Portsmouth	−25	Oklahoma City	−15
Oklahoma City	−25	Jacksonville	−15
Atlanta	−25	Salt Lake City	−15
Memphis	−28	Providence	−16
Jacksonville	−30	New Orleans	−16
New Orleans	−31	Scranton	−21

The Taft-Hartley Fight

Agreeing with the military principle that "the best defense is a strong offense", the C.I.O. did not wait to defend itself against the further legislative assaults which it expects from the new Congress. Instead, it took the offense by challenging the constitutionality of the Taft-Hartley Act in the courts. The occasion arose when President Truman invoked the emergency provisions of that law in connection with a long strike in the Dunkirk, N. Y., plant of the American Locomotive Co. About half the output of the plant was special pipe for the Atomic Energy Commission.

The union challenged the President's right to secure an injunction on the ground that such action violates the limits placed on the judiciary powers by the Constitution and also the Bill of Rights. The District Court rejected the union's argument and issued the injunction. An attempt to get the United States Supreme Court to take the case directly and immediately failed. The case, therefore, must go before the Circuit Court and then, perhaps, to the Supreme Court. In the meantime the employees have returned to work under the injunction for 80 days, as called for by the Taft-Hartley Act.

It is likely that much more will be heard about this case. It is essentially the only case where a strike of long standing was interrupted by a Taft-Hartley injunction. Each previous time when this procedure was used, it affected a threatened strike or one that had just barely begun. It was used almost exclusively in situations where the strike, if continued for any period of time, offered a clear danger to the nation's welfare. In this case, apparently no such danger developed until the strike had

been in process many weeks.

Furthermore, past Taft-Hartley injunctions were directed to situations where all or a substantial part of a basic industry was involved, such as coal or steel. In this case, the strike affected one small plant.

In the fight over amendments to the Taft-Hartley Act which is almost certain to come in the new Congress, the unions are sure to point to this case as an illustration of how the Taft-Hartley Act can be extended to break even small and unimportant strikes, while the proponents of the law will point with pride to the fact that President Truman had to use it when the nation's security was at stake.

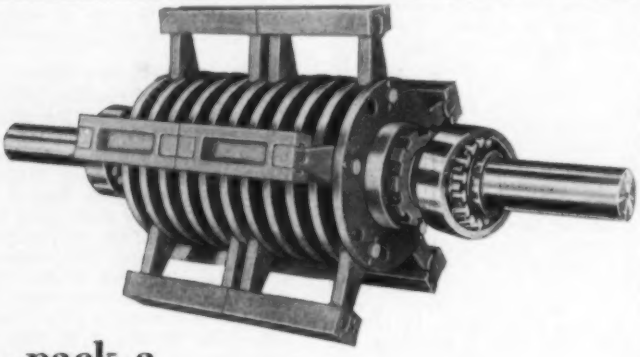
35th Slag Convention

(*From page* 95.)

An informal meeting was conducted by Fred Hubbard during the afternoon. Much of this session centered around methods and equipment for expanding slag, and the problems and experiences of many of the members were presented and discussed.

The evening was devoted to a cocktail party and reception for guests, followed by the annual banquet, which was well attended by members, guests, and government officials. After the banquet, Harris Snyder, the toastmaster, presented "Dr. Briscoe," who gave an enjoyable talk on a variety of subjects with a decidedly English accent. The members were confused when "Dr. Briscoe" turned out to be a "Mr. Kelly" from Philadelphia, who, in turn, turned out to be William Stanley Simms of Boston. It was finally established that Mr. Simms was actually the guest speaker.

The second day was occupied by the board of directors meeting, committee reports, and the election of officers. The following were elected: C. A. Barinowski, president (Birmingham Slag Company, Birmingham, Ala.); R. O. Dierker, vice-president (Duquesne Slag Company, Pittsburgh, Pa.); E. W. Bauman, managing director; William S. Shaw, treasurer. Members at large include W. E. Bliss (Standard Slag Company, Youngstown, Ohio); G. A. Mattison, Jr. (Woodstock Slag Corporation, Birmingham, Ala.); R. Newton McDowell (Gary Slag Corporation, Chicago, Ill.); and R. K. Plumb (American Steel and Wire Company, Cleveland, Ohio).



...pack a

real wallop!

The fast flying hammers—from 65 to 100 miles per hour—on this Eagle Hammermill make quick work of all stone that gets in their way. Special design of these high manganese hammers makes them reversible and replaceable. That goes for other wear parts, too, on this mill. It's another reason why Eagle owners are happy with their choice. The Model 36-42 mill which uses this rotor assembly produces material ranging from dust to 3" stone at a rate of 100 to 250 tons per hour. They pack a real wallop at production costs, too!

In many cases, the Model 36-42, illustrated at left, which carries the rotor shown above, does the work of both primary and secondary crushers. Several of these mills are doing yeoman work at some of the largest limestone plants in Ohio. Producers are well pleased with both the quantity and quality of the resulting aggregate.

Send for complete specifications, folder 251-141.

EAGLE

JAW CRUSHERS • IMPACT BREAKERS
PULVERIZERS • CONVEYORS • LOADERS

CRUSHER CO., Inc. GALION OHIO·U·S·A

Washington Newsletter

(*From page* 96.)

the major reason cited is the completion of large defense-stimulated expansion programs."

Finally, the report looks forward to a decline in the demand for residential housing to approximately the level of new family formation. By 1955 this is expected to average about three-quarters of a million per year. It speaks wistfully of a possible replacement demand for housing, similar to the replacement demand for automobiles, which would stimulate the home building industry substantially. However, it quickly comes down to earth and concludes that, historically, the replacement market is small, due in part to the long life of houses. There is no reason to believe that this situation will change.

Iowa Mfg. Co. Offers Film On Aggregate Production

A new movie produced by Iowa Manufacturing Company, Cedar Rapids, Iowa, makers of Cedarapids equipment, has been completed and is now ready for release. The movie, entitled *Aggregates Unlimited*, is an entirely new production, filmed in full color and sound, with narration by popular radio commentators, and with a completely new approach to the aggregate situation.

Unlike the regular commercial type of industrial movie which merely sells equipment, *Aggregates Unlimited* points up the importance of a modernized highway system in regard to the national economy and ties in directly with the efforts of the construction industry to promote more and better roads at low cost.

More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Hoyt Wire Cloth Screens. The four pages of this folder present a line of wire cloth screens. Illustrated are smooth top, long slot, oblong space, and double crimp types of weave. The mesh sizes and features of each type are given. The center pages list sizes and prices and discounts while the back page shows edge styles and prices. Hoyt Wire Cloth Company.

2. Hard-Facing With Coast Metals. This 12-page booklet presents the reasons for and advantages of hard-facing. Details of applying are given and a table lists the various types of rods available, gives properties, and suggests uses. Examples of hard-facing are shown and described and a list by industries suggests rods for specific applications. Coast Metals.

3. Colorcoat. The six pages of this folder tell the history of the product, the principle of its action, the colors available, and directions for use. The material is an oil paint and an aggregate combined to cover and seal rough masonry surfaces, cracks, and chips. Samples of the material are included as color chips. A list of other products for building preservation and repair is included. L. Sonneborn, Sons, Inc.

4. Orton Torque-Control Locomotive Cranes. Catalog No. 84. The sixteen pages of this catalog describe the Allison Torque Converter used to power the crane. A phantom view of the mechanism is included as well as of the torque converter. Also covered in the catalog are details of the anti-friction bearings, air controls, air-release spring-applied boom-hoist brake, roller bearing swing, and travel mechanism gears. Complete specifications are given. Orton Crane and Shovel Company.

5. The Ford Tractor and Dearborn Equipment. AD-8721. This 8-page catalog gives specifications and illustrations of a line of attachments made for use with the Ford tractor. The text points out additional applications for each device. Scoops, cranes, loaders, bulldozers, scrapers, blades, snowplows and a number of agricultural implements are shown. General information on construction, operation, parts, etc. are given. Dearborn Motors Corporation.

6. Stop Emergency Shutdowns, Accidents, Expensive Repairs, Production Losses Before They Occur. Form No. 140. This folder presents typical applications of non-destructive testing of parts by magnetic and sonic methods of inspection. A portable unit for field and shop use is described and pictured. Advantages of non-destructive testing are explained and several methods are briefly described. Magnaflux Corp.

7. Whitehouse Automatics. This folder presents a line of automatic and hand operated sprinklers. Types of nozzles, hangers, couplings, oscillators and sprinklers are shown and described. These devices are needed wherever there is a need for moistening as in curing concrete products, dampening areas to reduce dust, and other places where an area needs to be covered with a mist of water. Whitehouse, Inc.

8. 4 Entirely Different Ways to Profit with the New Clipper Convertible. This poster type folder uses color printing to show the machine and its features. Cutting of masonry composed of clay, concrete, stone, and similar materials is shown and explained. Wet or dry table portable floor saw or track saw models are shown. Features of the saws are shown as well as the various types of blades. The Clipper Manufacturing Company.

9. American 575 Crawler Crane and Truck Crane. Catalog No. 700-C-52. The twenty-four pages of this catalog illustrate the features of the model such as the travel assembly, driving mechanism, machinery deck, operator's controls, upper deck machinery, and anti-friction bearings. A page is devoted to each type of front showing applications and describing the assembly. Shovel, pull shovel, clamshell, dragline, magnet and crane are the fronts available. While most of the catalog shows the crane mounted on crawlers, two pages show the crane mounted on a heavy-duty truck chassis for more mobile operations. American Hoist and Derrick Company.

10. Westfall Center Pull Automatic Taglines. This small six-page folder uses photos and drawings to show the application and construction details of an automatic tagline for controlling clamshell and concrete buckets. Mounting diagrams and assembly drawings are used to complete the information. The text explains the features not brought out by the illustrations. Westfall Automatic Taglines.

11. Rust-Oleum Stops Rust. Form No. 292. A dual purpose is served by this sixteen page catalog. It includes complete instructions for surface preparation and application of rust preventing products and color chips for color selection and matching. In addition to serving as a color guide and use manual this publication also describes types of rust preventives such as primers, short oil types, long oil types, machinery and implement finishes, chemical and heat resistant types, sealers, thinning oils, and floor and masonry coatings. Rust-Oleum Corp.

12. D-40 in Concrete Block Manufacture. Technical Manual Page 80-E 20.2. A single page makes up this information sheet. Illustrations show the results of using the air entraining agent made by the company while the text gives advantages, properties, application and operating notes. Oronite Chemical Company.

13. Window Type "S". A Super Motor Truck Scale. The four pages of this mailing folder cover a scale for motor truck weighing. A cutaway drawing shows the construction details while photos show several types of beams available. The features of the scale are explained in the text while prominent features are given in the headlines. This model is for trucks up to 50 tons weight and up to 60 ft. long. Winslow Government Standard Scale Works.

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February, 1953

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More Information, Please

14. The Yale Pak-Loader fork truck system of material handling. Bulletin P-1178-A. This bulletin pictures and describes a system for handling materials in unit loads without the use of pallets. Illustrations show how a special steel plate is pushed under the load and then raised on the forks for transport. A pushing device shoves the load off the plate while it is being held by the fork. Yale and Towne Manufacturing Company.

15. The 8 in 1 Utility Body. Form L-116. Interesting uses of the truck body are shown in the four pages of this folder. Shown are the primary use for hauling concrete and the additional uses such as carrying sand, clay, bulk cement, gravel, mortar, water, ore, stemming material and earth. This folder is designed to show the versatility of the Dumpcrete body. Manufacturing Division, Maxon Construction Company.

16. A New System of Continuous, Intensity Controlled Rapping for Cottrell Electrostatic Precipitators. Bulletin ML. The six pages of this bulletin give illustrated information on a magnetic impulse continuous electrode rapping system for use on electrostatic precipitators. Circuit diagrams, component photos, and the rapper are shown in the bulletin. Research Corp.

17. Dust Collection in Mining and Metallurgical Industries. Bulletin 402. This brochure of eight pages gives illustrated case histories of cloth-tube dust collectors. Included are applications on such machines as sintering, blast furnaces, slag cupolas, coal cleaning, and asbestos processing. The role of synthetic fabrics in the filtration of hot and corrosive gases is discussed. American Wheelabrator & Equipment Corp.

18. There's Trouble Ahead for These Buildings. The front of this folder shows typical examples of water damage and efflorescence in masonry buildings, while the center shows comparative photos of treated and untreated surfaces. The material, a silicone water repellent, is described in the text. Dewey and Almy Chemical Company.

19. Universal Jackdrill. Form 4126-A. This folder is designed as an introductory letter concerning the drill. The center spread uses photos and drawings to show the features and applications of the device while the back page gives a list of products and company offices. Ingersoll-Rand.

20. American Blower Centrifugal Compressor. Form No. 300. This mailing folder serves as an introduction to the single stage centrifugal compressor made by the company. The inside shows the blower and an exploded view of the parts. Explanations of the exploded view as well as general features are given. This mailing piece is intended to solicit inquiries for additional information. American Blower Corp.

21. Louisville Steam Tube Dryer. Bulletin No. 55 (revised edition). The 18 pages of this bulletin cover a line of dryers for drying such materials as bentonite, fluorspar, silica, limestone dust, flotation concentrates, clay and similar materials. The text which takes about half the brochure, explains the use of steam dryers, construction, principles, dust collectors, special metals, shell, and tires. Operation of the dryer, problems of different materials, and various modifications to meet specific problems are also covered. A drawing gives dimensions and general set-up. Products that have been handled are listed on the last page. General American Transportation Corp.

22. The Kewanee-Iron Fireman Boiler-Burner Unit. Form No. 2314. This 14-page full color catalog describes and gives complete data on a line of boiler-burner units for high or low pressure heating, power or process steam. Described are oil, gas or oil-gas burners combined with a boiler and the necessary controls for supplying a packaged installation for heat or power steam generation. Tables give ratings, dimensions and other data while drawings and cutaway views show some of the features of the unit. The controls are described and the central panel is shown. Iron Fireman Manufacturing Company, and Kewanee-Ross Corp.

23. Thermoid Multiple V and FHP Belts. Form 3787. This eight-page catalog shows construction details of multiple V-belts and lists sizes, prices, and weight. Construction details are explained. Light duty single belts for fractional horsepower use (FHP) are treated similarly. Conversion tables show the relation of the Thermoid numbers to those of other manufacturers. Thermoid Company.

24. Telsmith Jaw Crushers. Bulletin No. 200. Nine sizes of jaw crushers are covered by this 8-page bulletin. Jaw openings of 10 by 16 in. to 30 by 42 in. are covered with capacities from 5 t.p.h. to 275 t.p.h. Application photos take up one page while drawings, cutaway views and text occupy the center. The last page consists of tables giving specifications and dimensions of the nine sizes. The back cover pictures and names other types of crushers, feeders and screens produced by the company. A list of additional products and other bulletins is included. Smith Engineering Works.

25. Reports from the Field on Trackmobile. Bulletin T-100. Savings up to $11,500 a year are reported in studies given in this six-page folder. Various applications of the Trackmobile car mover are given and the advantages are listed. Photos show the machine and drawings point out the mobility of it in plant use. Whiting Corp.

26. Torque Converters for Trucks. Bulletin No. 501. The advantages of torque converters in on- and off-highway truck service is covered in this colorful 12-page catalog. A brief explanation of the action of the converters in multiplying torque and in applying a braking effect when needed is given. Cutaway drawings show the construction features of the converters and drawings show types of hook-ups and suggest fluid systems. Charts show horsepower output of two series of converters at various engine speeds. Several interesting applications to heavy-duty industrial use are given. Twin Disc Clutch Company, Hydraulic Division.

27. Jeffrey Belt Conveyors. Catalog 852. Ninety-two pages of photos, drawings, diagrams, tables, charts, and text make up this large catalog on belt conveyors. The foreword calls it a handbook of belt conveyors. It contains the latest designs of belt conveyor details and complete engineering data for any application. Large pictures of outstanding installations are shown. Some of the headings are: belting; belt cleaning brushes; capacities; cast iron pulleys; cast iron idlers; drives; feeders; holdbacks; horsepower tables; idlers; inclined conveyors; method of loading belts; pulleys; self-aligning idlers; spacing of idlers; conveyor speeds; stackers; take-ups; trippers and wipers. Jeffrey Manufacturing Company.

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HOW TO STRIP STICKY OVERBURDEN IN A HURRY

The overburden around Penn-Dixie Cement Company's limestone quarry just east of Winterset, Iowa, is mostly sticky clay. To strip this material in a hurry, Central Construction Co. used teams of Caterpillar Diesel DW20 Tractors with No. 20 Scrapers.

Central Construction knows you need a high apron lift to eject heaping, sticky materials, and the No. 20 Scraper gets a 75-inch apron opening from its long arms located outside the bowl. And that bowl handles 20 cu. yd. heaped, 15 struck. It's a flat-bottom bowl, too, and this design, matched to long-wearing, self-sharpening cutting edges and a stinger bit, gives a "live" loading action in any soil condition.

The DW20 Tractor with its 225-HP Diesel engine balances power with capacity to give you sustained, long-haul, high-speed earthmoving at low over-all cost per yard. Its engine, transmission and final drive are all-Caterpillar built. The rigid, welded box section frame and "Hi-Electro" hardened final drive gears are only two of scores of reasons this dependable machine stays on the job so long. Ask your Caterpillar Dealer for the whole story behind the low-cost, long-life performance of this DW20-No. 20 team. He'll be glad to arrange a demonstration.

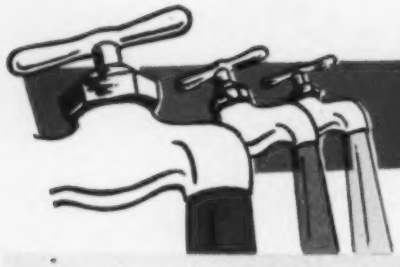
And remember, only genuine Caterpillar parts can give you the genuine Caterpillar quality that's built into every one of these big yellow machines.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

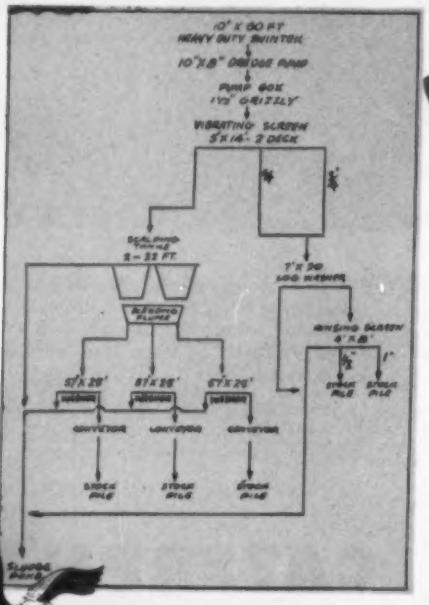
CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT



IT'S LIKE TURNING ON A



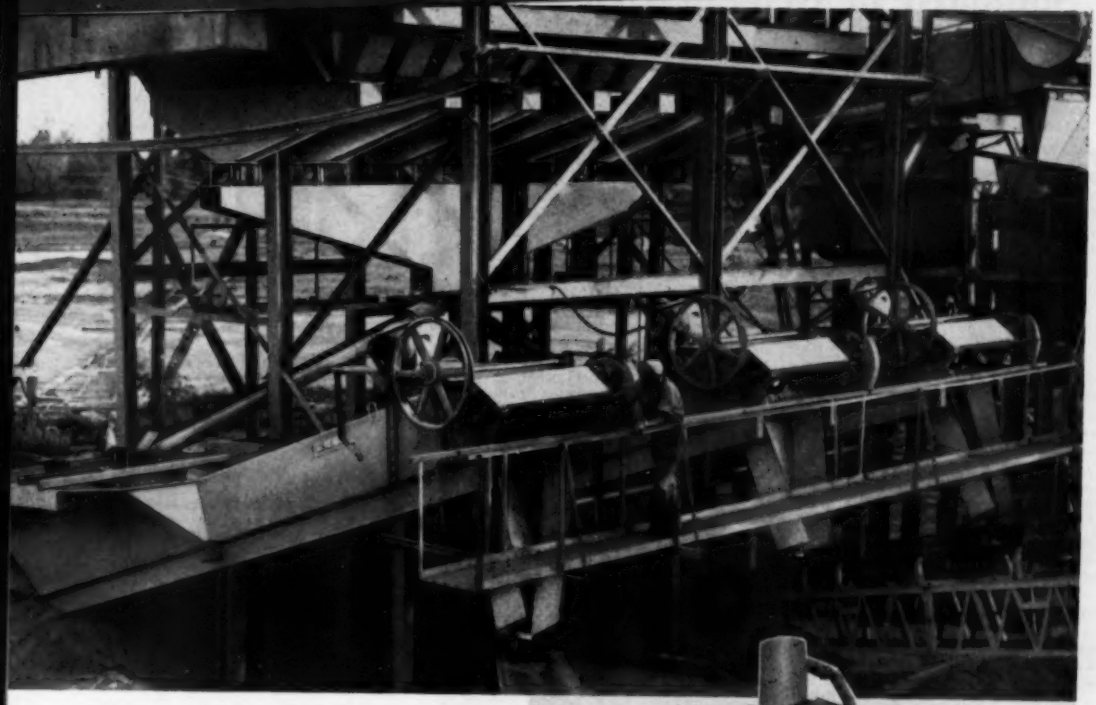
THE neat, highly efficient sand and gravel plant of Knox County Sand Co., Vincennes, Indiana, is pictured on these pages and detailed in the flow diagram at left—but, it has to be seen to be appreciated.

Material is pumped to the plant from a trim dredge equipped with an Eagle 10" — 60' heavy duty "Swintek" Dredging Ladder. The traveling chain of the "Swintek" screens the intake nozzle, eliminating shut-downs caused by boulders clogging suction line. Cutters on the traveling chain agitate the deposit increasing percentage of solids pumped. Cutters also penetrate stratas of clay when encountered. The suction line is 10" and the discharge line is 8".

The plant, designed by Eagle, is flexible—it can produce one, two or three gradations of material—one at a time or simultaneously. Dredged material is discharged in the pump box atop the plant. It is then screened. Material passing through vibrating screen flows into an Eagle 32' Double Water Scalping Tank. Sand of coarser mesh settles at the "feed box" or inlet end of tank, less coarse sand settles near the middle and fine mesh sand at the far end. Excess water flows over adjustable weirs on three sides of the tank and is carried off.

KNOX COUNTY SAND COMPANY PROFITS FROM EAGLE'S BROAD

FAUCET TO GET THE SAND YOU WANT!



From the bottom of the tanks sand flows to gathering flumes, then through adjustable bleeder gates to a divided triple blending flume. This flume controls the ratio of the size of material troughed to the three Eagle 57" x 24' double screw Fine Material Washer-Classifier-Dehydrators.

Gravel from the screen is chuted to an Eagle 7' x 20' Log Washer, shown at right, which frees it of clay and silt.

Knox has "on tap" material to any specification. Output averages 150-tons per hr.—17% gravel, 83% sand. Concrete sand is main product, but asphalt sand, mason sand and plaster sand are also produced—just like turning on a faucet!

Difficulty, at first, with too many fines settling at the first valves, was solved by Eagle's "Follow Through" Engineering. "Rising current classification" was applied — a water inlet adjacent to the first valves to float some of the fines further along. According to C. A. Broecket, Vice-President and Cecil Parker, Operating Foreman (shown on catwalk in view above) performance is highly satisfactory — everybody is happy—especially the contractors who get the kind of sand they want. Why not investigate Eagle Equipment for your plant? Send for literature today!

EXPERIENCE AND "FOLLOW THROUGH" ENGINEERING

LEADERS IN AGGREGATE WASHING AND CLASSIFYING EQUIPMENT FOR HALF A CENTURY
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EAGLE IRON WORKS

Alloy Iron Balls Set New Standard in Cement Grinding

By KENNETH A. DELONGE

Development & Research Division
International Nickel Co., New York

OVER the years cement plant operators have used white iron and forged steel grinding balls for the processing of raw cement stone and finished clinker. More recently the trend has been toward the use of forged steel balls produced by improved heat treating methods to obtain greater hardness and longer life.

About five years ago a program was undertaken for the purpose of producing Ni-Hard* grinding balls. Ni-Hard is a trade-marked martensitic nickel chromium white iron containing nominally 4.5 percent nickel and 2.0 percent chromium which has been widely used in the cement industry for many years in the form of mill liner segments, roll heads, pulverizer bull rings, gudgeon bearings, hopper and chute liners, clinker cooler liners, slurry pumps and other abrasion resisting castings. Prior to that time no concerted effort had been put into casting this iron in the form of grinding balls for cement plant service.

At the outset it was determined to concentrate the work on small size balls in the range of 3/4 to 1¼ in. in diameter. Balls in this size range could best be produced by casting in sand molds and the first step was to work out a casting procedure which would insure that all balls would be commercially sound and free of internal shrinkage porosity. The success in achieving this end is illustrated by the appearance of a typical string of sectioned balls shown at the right. Experimental work demonstrated that because of the small size of the balls and their fast cooling rate in the molds the full alloy content of this type of iron was not required and the ultimate level found necessary was approximately 3.0 percent nickel and 1.25 percent chromium. This reduced alloy content proved to be entirely adequate to produce the martensitic microstructure which is the prerequisite of excellent abrasion resistance.

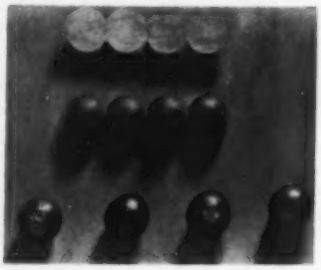
TABLE 1
Analysis and Hardness of Ni-Hard Grinding Balls

Chemical Analysis:	
Total Carbon	3.00 - 3.50
Silicon	0.40 - 0.70
Manganese	0.25 - 0.40
Sulphur	0.15 max
Phosphorus	0.40 "
Nickel	2.75 - 3.25
Chromium	1.00 - 1.30
Properties:	
Brinell Hardness	550 - 650
Re Hardness	55 - 61
Specific Gravity	7.70 g. per cc.

Once qualtities of the balls had been produced, arrangements were made with a number of major cement companies to test them in commercial service.

*Reg. U.S. Patent Office, International Nickel Company, Inc.

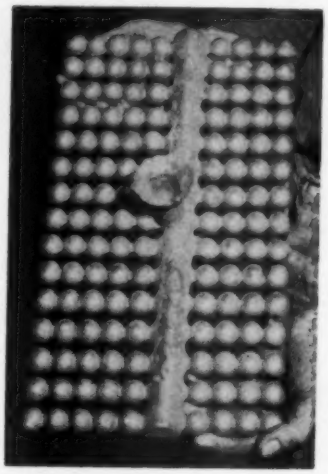
The tests were normally run by loading one mill with the alloyed iron balls and keeping the record of the weight of make-up balls required over an adequate test period and comparing this result with the performance of forged steel or unalloyed white iron balls in another mill operating under identical conditions. The first company to report results after one year of service indicated that in grinding clinker the consumption of the alloyed iron balls was one-fourth to one-fifth that of forged steel balls. Tests extending over periods of one to three years at six other plants definitely substantiated this fact and showed that the consumption of martensitic white iron balls ranged between 18 and 33 percent of that of forged steel when grinding clinker. The testing of alloyed iron balls in the grinding of wet cement stone is not yet far enough along to report conclusive results but it is anticipated that they will show a superiority of approximately 1½ to 1 over hardened steel in line with the performance they have shown over a period of years in the wet grinding of various types of metallic ores.



At the top, a sectioned string of the balls showing their soundness and the absence of shrinkage porosity, and below, four balls after dry tumbling at the foundry.

The fundamental reason why martensitic white iron resists abrasion better than hardened steel is the presence of a multitude of very hard carbides imbedded in a strong tough matrix. But the reasons for the widespread difference in the life of the alloyed iron and forged steel balls in clinker grinding are believed to be first, the absence of corrosion, and second the fact that the higher operating temperature has a hardening effect and contributes to increased abrasion resistance in the alloyed iron as compared to a softening effect on other types of grinding media.

The economy which results from the use of alloyed iron balls of this type is illustrated in the case of a typical plant consuming 100 tons of 3/4 in. forged steel balls per year for clinker grinding. With a 4 to 1 superiority, the alloyed iron ball consumption would be only 25 tons and would cost somewhere in the neighborhood of one-third as much. The anticipated savings possible through the use of the alloyed iron balls in wet grinding service, while not so striking, are still substantial, particularly in view of the greater overall consumption of balls in wet as compared to dry grinding service. The alloyed iron balls also offer the advantage of less frequent interruption in ball mill service due to adding make-up balls and a lower investment required in carrying an adequate stock of grinding media.



Alloyed white iron balls as removed from the mold.

In addition to the production methods that were developed for the casting of sound alloyed iron balls, a simple magnetic test was established as a practical foundry tool to permit an immediate and continuous check upon the quality of the balls as they are being produced. This magnetic test along with modern iron melting practice and improved casting technique insures production of grinding balls of a high and constant quality. The balls are given a stress-relieving treatment at 500 deg. F. before being shipped since it has been established that this treatment appreciably improves their toughness.

To date there are some nine established producers of this type of grinding ball located throughout the United States and Canada. All of these foundries are making the balls according to the analysis and the practice that has been established to produce sound balls of constant metallurgical structure. Based upon years of experience in the field of martensitic white irons for abrasion resisting service, it is believed that this type of grinding ball has now established a new standard for grinding media performance in the cement industry and will provide substantial economies in grinding costs in the years ahead.

obituaries

WILMER H. GEMMER, chairman of the board of the Texas Construction Material Company, died on December 22, 1953, in Houston, Tex., at the age of 81 years. Mr. Gemmer was once affiliated with the William P. Carmichael Company and later became manager of Horton & Horton, a building material business in Houston. In 1920, with John A. Tanner of Columbus, Tex., he organized Gemmer & Tanner, gravel producers operating pits in Colorado County. In 1929 he assisted in consolidating five gravel companies, one of which was Gemmer & Tanner, to form the Texas Construction Material Company. Soon thereafter he retired from active participation in the business.

WILLIAM JAMES D. REED-LEWIS, company engineer for the Dragon Cement Company, Inc., New York, N. Y., died of a heart attack on November 3, 1952, in a Boston Hospital at the age of 70.

Mr. Reed-Lewis spent much of the early years of his adult life in Canada and served with the Sixth Canadian Railway Engineers in World War I. Soon after returning from France he and his brother, Ellis, patented and marketed "Super Cement," with headquarters in Detroit. This product was sold by many cement firms, with royalties going to Super Cement.

In 1934 Mr. Reed-Lewis joined the Dragon staff (then the Lawrence company) as engineer, first in the Boston office, and for the last 16 years in New York.

LOYE H. FITZPATRICK, 54, who joined the National Gypsum Co. when it was founded in 1929 and had been its advertising manager for almost 20 years, died recently after an illness of three months.

Mr. Fitzpatrick was one of the members of the original staff of National Gypsum. He soon was transferred from the sales correspondence and promotion department to the advertising department, of which he later became department manager.

WARD TUTTLE, 44, industrial relations manager of Southwest Potash Corporation, Carlsbad, N. M., died recently at his home in Carlsbad. A graduate of the University of Utah, Mr. Tuttle joined Southwest May 1, 1951, after serving from 1946 to 1951 as assistant public relations manager of United States Smelting, Refining and Mining Company, Salt Lake City. During World War II he was area director of the War Manpower Commission office in Salt Lake City.

Inland Lime & Stone Company Becomes Inland Steel Division

A recent announcement states that the Inland Lime and Stone Company, formerly a wholly-owned subsidiary of the Inland Steel Company, Manistique, Mich., has been made a division of that firm, and is no longer a separate corporation. It was indicated that the change was made for technical reasons and that it will have no effect on policies, operations, or personnel.

Official positions of the management personnel of Inland Lime and Stone are as follows: A. W. Heitman, vice-president, operations; William A. Corson, sales manager; and Walter Moon, auditor.

Picture shows how a Sauerman Slackline Cableway digs gravel deep under water and hauls the material to top of screening plant. Swinging in a wide arc, the machine moves a huge yardage at one setup of the mast.

SAUERMAN method . . .

Simplifies Material Handling!

At hundreds of sand and gravel plants, rock processing plants, cement mills, etc., where there are problems of long range excavating or stockpiling, Sauerman Drag Scrapers and Slackline Cableways constantly prove their ability to handle large yardages at low cost.

A Sauerman machine reaches across a river, down into a pit, up to the top of a hill or across a wide stockpile — moves material from any point within its radius, and dumps automatically wherever required. One-man control, fast action. Power requirement is moderate. Maintenance is easy; a few expendable parts take all the wear.

Whether your project is large or small, there is a size and type of Sauerman machine suited to your requirements — a machine that will give you years of steady service at minimum expense, no matter how tough the work it is called upon to do.

Write us about your interests and we will send illustrated catalog by return mail.

Sauerman Scraper Delivering Gravel to Hopper.

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Rope Haulage Equipment Specialists Since 1909

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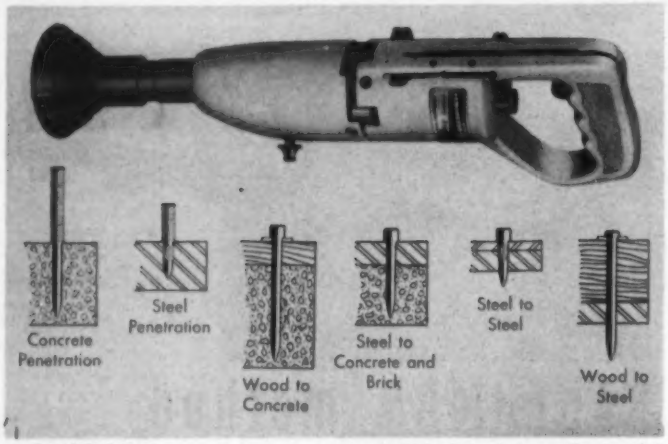
new machinery and supplies

PIT AND QUARRY



● Stud Driver

A stud driver gun that uses a special 32 caliber Long rim fire cartridge has been developed by the Remington Arms Company, Bridgeport, Conn.

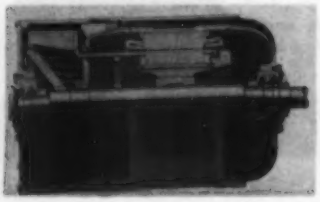
The gun weighs just under six pounds and is able to drive studs up to ¼ of an inch into structural steel, and other material. The cartridges, which are specially designed to hold the studs, are made in five powder charges so that the degree of penetration or the force of driving the stud can be suited to the conditions and materials. Colors are used to identify the charges in the cartridges.

The studs are made in four types—nail head, beak-off head, internally threaded and externally threaded, and in 20 different sizes. The stud is slipped into the end of the proper cartridge and is inserted in the gun. The bell-shaped guard is positioned firmly against the material where the stud is desired. This releases the first safety device, then a safety lever is pushed down and held in place and the trigger pulled. All of these must be operated or the gun cannot fire. The gun will drive five or more studs a minute into steel, concrete, wood or a combination of these. They may be used for joining purposes or for hangers or anchors.

● High-Slip Induction Motor

A totally enclosed fan-cooled induction motor having high-slip characteristics has been announced by the Small and Medium Motor Department of the General Electric Company, Schenectady, N. Y.

The "Type KRX" motors are designed for use in acceleration of high-inertia loads such as hoists, and are available in 30 to 150 hp. at 900 and 1200 r.p.m. 5-8 and 8-13 percent slip. Voltage ratings are 220, 440, and 550. These type motors are said to be up to 30 percent smaller and 40 percent lighter than conventional models. The construction of the rotor dissipates heat rapidly and maintains a normal air gap in the motor.



● Prelubricated Idler

An idler for conveyor use that incorporates prelubricated, sealed tapered roller bearings has been brought out by the Industrial Division, Continental Gin Company, Birmingham, Ala.

The new idler, Type "UST", has Timken Tapered Roller Bearings that are sealed in with Garlock Klozures. The bearing assembly has a grease reservoir that provides ample lubrication for periods up to three years or more under certain conditions. Seals prevent grease from migrating from the upper to the lower bearing on an inclined idler and from working out onto the belt. The assembly is made so that the bearing can be relubricated or disassembled and cleaned and new seals inserted when necessary with a minimum of work.

● Drive-On Belt Fastener

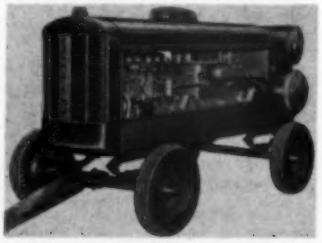
A conveyor belt fastener that is driven into place with a hammer is available from the Flexible Steel Lacing Company, 4607 Lexington Street, Chicago 44, Ill.

The "Turtle" fastener has three teeth on each side which are driven through the belt to repair cuts and tears and to make joints. It will repair rips in belts from ⅛ to 9/16 in. thick and join medium duty belts from 7/16 to 9/16 in. thick. The Turtle is made of steel, monel, stainless, or everdur metals.

● Portable Compressor

A portable 210 c.f.m. compressor powered by a "Dezoil" engine has been announced by Schramm, Inc., West Chester, Pa.

The engine uses diesel fuel that is injected into the cylinders and then spark ignited. This type of engine is also being used on the 105 compressor. It is said to be economical in operation and cost. The compressor is a six-cylinder type which has 90 percent of its parts interchangeable with the engine.



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for cement, lime and mining plants

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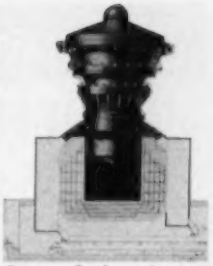
Good machinery just doesn't happen! It is the result of sound design, engineering and manufacture . . . the kind of facilities which distinguish *all* KVS products . . . world-famous for their mechanical excellence and economy of operation.

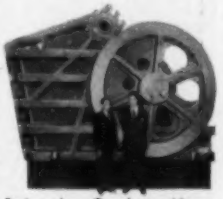
In their Danville, Pa. plant, occupying over 20 acres of space, KVS manufactures everything from a crusher to a complete cement, lime, or mining plant. The importance of world-wide experience in designing and building machinery and equipment which delivers maximum output at lowest operating costs is demonstrated in every KVS installation.

Whether your requirements call for the addition or replacement of a single piece of equipment, the modernization of an existing layout or the building of a complete plant for the manufacture of cement, lime or mining operations, Kennedy engineers are at your service to assist in planning, creating and specifying the installation best suited to your needs.

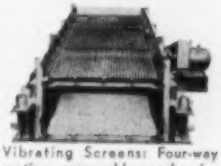
KVS engineers are available for consultation anywhere in the world. We invite your inquiries regarding our machinery and equipment . . . literature is available upon request . . . to help you determine the BEST method of solving your individual problems. Get the KVS story *before* you specify!



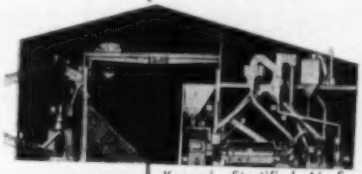
Gyratory Crusher, primary and secondary types, with double discharge outlets



Swing Jaw Crushers: Heavy duty models, reversible jaws.



Vibrating Screens: Four-way motion; removable mesh; single, double or triple deck models



Kennedy Stratified Air Swept Tube Mill

Kilns, Coolers, Dryers: Built sectionally; any length or diameter.

IT COSTS LESS.. TO OWN THE BEST!

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TWO PARK AVENUE, NEW YORK

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YUBA PLACER DREDGE DIGS, TREATS, STACKS 18,000 TONS GRAVEL DAILY...

This placer dredge with 18 cu. ft. buckets digs to 125' below water, averages better than 22 hours running time daily. Intricate treatment equipment on board limits digging to only 18,000 tons of gravel per day. For sand and gravel digging only, an 18 cu. ft. YUBA dredge can produce as much as 40,000 tons daily.

5¢ Per Ton

YUBA gold dredges of this type can be converted readily to produce and size gravel at total operating costs substantially under 5¢ a ton. One big advantage—they float in their own ponds and excavate gravel without lowering surrounding water levels.

Long Operating Life

With YUBA dredges you get both low production costs and long operating life—many YUBA dredges are operating efficiently after 25 years or more of rough service.

Consult YUBA NOW. We will design and build a new dredge to fit your ground; or help you find a used dredge, and move, redesign and rebuild it. Wire, write or call us—no obligation, of course.

Profusely illustrated, 40-page brochure, "YUBA Dredges," yours for the asking.

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63

● Multi-Purpose Grease

A lithium base grease for multi-purpose use has been developed by Shell Oil Company, 50 W. 50th Street, New York 20, N. Y.

The new grease, "Alvania," has a high resistance to breakdown, a high water tolerance, and a broad temperature range. It also has high pumpability and movement at low temperatures, and no phase change at temperatures up to the melting point. The oxidation rate is low and storage stability is excellent.

Use of a multi-purpose grease makes possible savings in grease consumption, elimination of misapplication, reduced inventory, and simplified purchasing and storage.

● Truck Crane

A 30-ton lifting capacity crane that is mounted either on an automotive type carrier or on a three-axle self-propelled carrier has been added to the Lorain line of cranes made by the Thew Shovel Company, Lorain, Ohio.

These are designated as Lorain Moto-Crane "Model MC-524" and Lorain Self-Propelled "Model SP-524". The Moto-Crane has a travel speed of 30 m.p.h. on highways, and has 10 forward and 2 reverse speeds. Air brakes, air assist steering,

and accessories for highway operation are standard. Gasoline or diesel engines, and 4- or 6-wheel drives are optional. It can be used as a shovel, crane, clamshell, dragline or hoe.

The Self-Propelled model has rear-axle drive only and four speeds in both directions with a top travel speed of 7½ m.p.h. Air brakes and air steering are operated from the cab. It is available as a crane or dragline only.

Both models have crane booms that can be extended to 100 ft. in length, and which will carry a 25 ft. tip extension.

● Vibrating Screen

A new style vibrating screen, the Robins "Vibrex, Model MS," has been announced by Hewitt-Robins, Inc., 666 Glenbrook Road, Stamford, Conn.

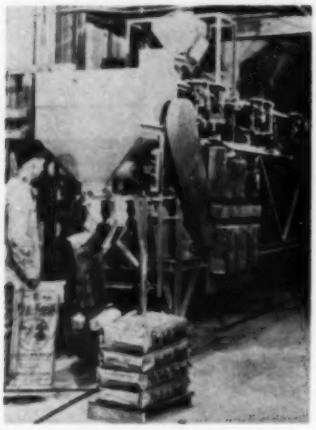
The new model has coil springs enclosed in a neoprene accordion type boot instead of leaf springs. The screen employs the circle-throw principle of vibration which bounces the material and gives it a circular motion as it moves across the surface. Single and double deck models are available, and the former can be converted to a double deck unit.

● Dry Mix Packaging Plant

A newly designed automatic machine for the preparation of dry mixed, packaged concrete products has been developed by the Mix-Kwik Products, Berkeley, Calif.

The machine consists of a complete unit for the proportioning, mixing and sacking of the ingredients into either valve type or open mouth paper bags. Facilities required to bring the materials to the machine are a standard type dryer and storage bins for aggregates and cement.

The machine is compact and requires a minimum of floor space. Aggregates and cement are fed in correct proportion by



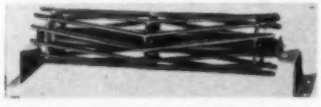
Syntron feeders onto a 30-in. wide moving belt. The belt moves over a set of automatic scales and dumps weighed batches into a discharge hopper at the sacking station. Revolving blades in the hopper mix the material as they are fed through a sleeve into the bag. All controls are automatic and preclude the possibility of improper mixing, proportioning or short weights.

A complete installation will produce up to 60 tons per day with a three man crew, although one man can operate the machine at the rate of 36 tons per day if necessary.

● Self-Cleaning Return Roll

Barber-Greene Company, Aurora, Ill., has introduced the "Chevron Rod" Return Roll. This roll is self-cleaning and prevents build-up of material that interferes with belt movement.

The Chevron Roll by its open design provides litle area for material to accu-



mulate and the vibration of the rods against the belt are said to dislodge any material that clings to the rods. The design of the roll also aids in keeping the belt in alignment. It is suggested for use on conveyors handling wet, fine or sticky materials.

One FARQUHAR CONVEYOR plus half the manpower moves cement bags in one-fourth the time!

At the J. C. Cornillie Co. in Detroit, formerly *six* men were needed to load and unload their warehouse in a given time. To speed this operation, *one* Farquhar Conveyor was installed. Not only has it *quadrupled* the number of cement bags that can be handled in and out of trucks and railroad cars in the same time, but now only *three* men are necessary for the job!

Whether you move coal, gravel, sand, aggregates, cartons, boxes, bundles, bales, or any kind of bulk or packaged materials—horizontally or from floor to floor—Farquhar can cut *your* handling costs to rock bottom! One or more of the complete line of Farquhar portable, semi-permanent and permanent power-belt or gravity conveyors will solve your handling problem. Our engineers will be glad to consult with you . . . at no obligation!

OLIVER Farquhar CONVEYORS

POWER-BELT AND GRAVITY CONVEYORS

FREE! "Owners Report"—booklet of case histories showing typical money-saving conveyor installations.

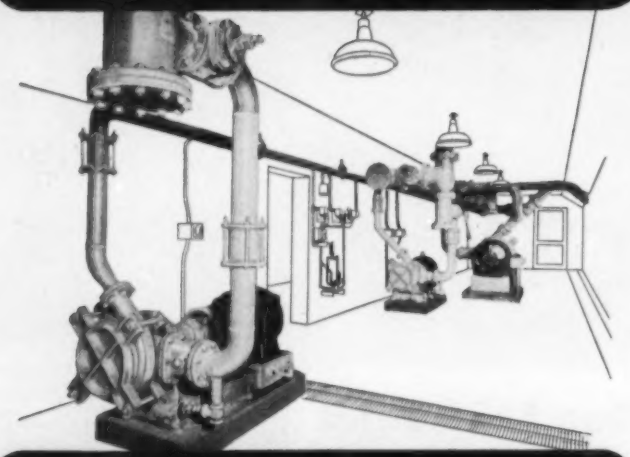
MAIL COUPON FOR YOUR COPY

THE OLIVER CORPORATION
A. B. Farquhar Division
Conveyor Department
Dept. F-36, York, Pa.

Gentlemen:
Please send me my free copy of "Owners Report."

Name.....
Firm.....
Address.....
City..... Zone..... State.....

Handles extremely thick slurries with high specific gravities



MORRIS Type R SLURRY PUMP

Heavy viscous slurries with solids ratios as high as 70% by weight are not unusual loads for a Morris Type R Slurry Pump.

A case in point is this Morris installation at the Missouri Portland Cement Co., St. Louis, Mo. The two Morris 3R Pumps in the foreground each handle 200 GPM of a cement slurry at 64% solids with 1.66 specific gravity. Speed is 1180 RPM. The 6R Pump in the background handles 600 GPM of the same slurry at 880 RPM.

Long operating life...
little or no maintenance

Massive running parts of the Type R compensate for the increased load imposed by high specific gravities. Hydraulic passages are deliberately designed for high concentrations of solids—the result of careful study of wear patterns shown by pumps in the field handling all kinds of abrasive materials. Elimination of areas of throttling and turbulence assures uniform wear of all parts.

There are no internal studs or bolts—no troublesome internal joints and fits. The suction disc liner is merely *clamped* into position between disc and shell. The absence of high stress on the shell permits wide variations in its composition—including materials of high abrasive resistance—to resist wear and extend the operating life of the pump.

Let our engineers consult with you on your slurry pump problems. They'll give you the benefit of 88 years of pump-building experience. Or, write for Bulletin 181.

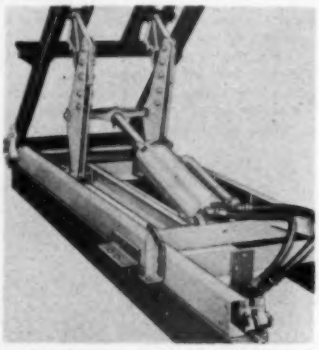
MORRIS MACHINE WORKS
Baldwinsville, New York
Sales Offices in Principal Cities

MORRIS Centrifugal Pumps

● Body Hoist

The Galion Allsteel Body Company, Galion, Ohio, has announced that its Model "770" hydraulic hoist for truck bodies has been redesigned to give it a wider application.

The new model 770 is rated for a load of 10 to 13 tons and is suitable for most medium-duty operations. It is recommended for use on 8 to 12 ft. bodies and has a 50 degree dumping angle. The subframe is steel, the rear hinges cast steel and the crosshead forged steel. Arms and lift links are equipped with bronze bushings and grease fittings.



● Light Truck Models

GMC Truck and Coach Division, General Motors Corporation, Pontiac 11, Mich., has announced several improvements in the 1953 line of light trucks.

Among the features are "Hydra-Matic" transmission for 19 models of the line and two new truck engines. The new engines have higher compression ratios and deliver more power. They have been designed to give greater efficiency from the fuel used and to have lower maintenance costs.

The Hydra-Matic transmission not only delivers the correct power to the wheels but also can be used to give a braking effect when needed. New Duo-Servo brakes have self-energizing shoes that require minimum effort for braking.

● Vibratory Feeder

A small vibratory feeder with a capacity of up to 500 lb. per hour has been added to the line of feeders made by the Syntron Company, 385 Lexington Avenue, Homer City, Pa.

The new model, "F-OO", operates on an electro-magnetic principle and is controlled by a rheostat in a controller. It is suggested for use in weighing and packaging lines and for other types of processing.

● Pressure Test Gauge

Checking of pressure gauges, controllers, and indicators for accuracy can be done with the Model "P" Test Gauge made by the Foxboro Company, Foxboro, Mass.

The test gauge is furnished in ranges of 0-30 Hg. vac. up to 0-10,000 p.s.i.g.

and is guaranteed accurate within one-half of 1 per cent of the total scale. Tapered male pipe threads are provided.

The gauge is constructed of cast aluminum and brass, with the mechanism of beryllium copper, chrome-plated steel, monel metal and stainless steel.

● New Truck Models

Three new engines, improved brakes and more than 50 new features are announced for the 1953 "B-4" series of Dodge "Job-Rated" trucks manufactured by the Dodge Division, Chrysler Corporation, Detroit 31, Mich.

The new series has a total of seven engines ranging from 100 hp. in the smallest to 171 hp. in the largest. Gross

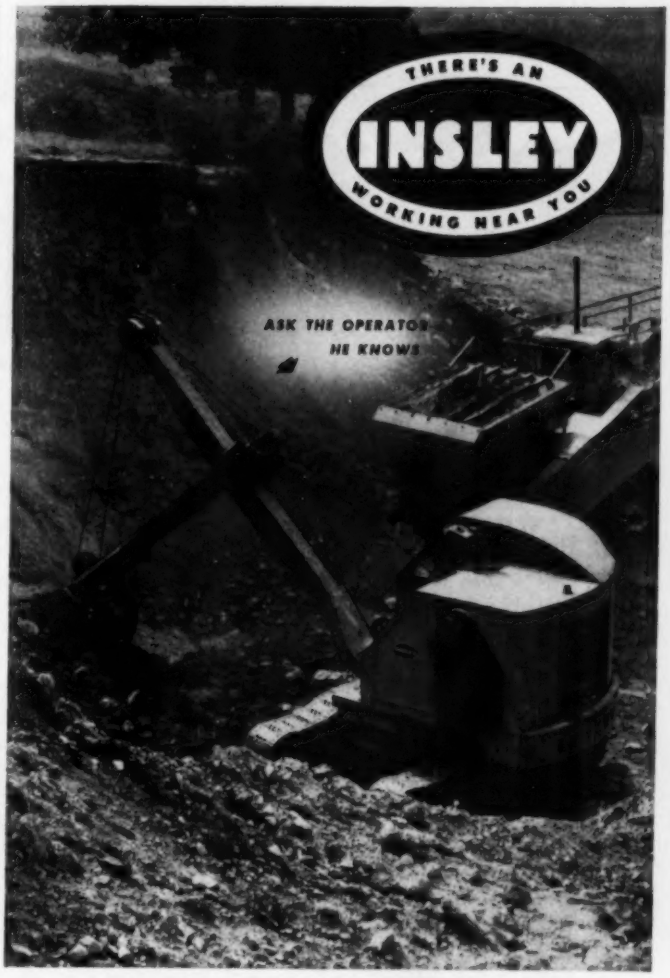
vehicle weights are from 4,250 to 40,000 lb. and combinations are 60,000 lb. Capacities go from ½ to 4 tons. All engines have increased power output for higher road speeds, and improvements for longer life.

Features of the line include extra-powerful brakes, automatic transmission in the ½- and ¾-ton models, improved exhaust system, reinforced cab, more powerful heaters, moistureproof ignition, and many more.

● Industrial Hose

A special type of high-pressure, flexible rubber hose is being produced by the Republic Rubber Division, Lee Rubber and Tire Corporation, Youngstown 1, Ohio.

The new hose is composed of Reprene rubber that is reinforced with a special continuously braided carcass built up of rubber impregnated plies. The carcass may be made of braided fabric, braided wire or a combination of both. Covers may be either rubber or braided textiles. The "Wiretex" line of hose is said to stand pressures up to 5,500 p.s.i. and temperatures from -40 to 200 degrees satisfactorily. It is not weakened by vibration.



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PROJECT RATED
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BY THE USER — FOR THE USER

that Insley Equipment can be rated-for-the-project . . . he knows that specification alternates make it possible to buy the exact equipment to do his job best.

INSLEY MANUFACTURING CORPORATION • INDIANAPOLIS 6, INDIANA

Colmonoy No. 1 Hard-Facing Outwears Manganese Steel

Tough manganese steel is used to make parts that must really take rough use. When these parts wear beyond usability, they are often rebuilt with nickel manganese steel alloy. This has been a good practice to give worn parts a new service life equal to their original life.

It is a much better practice, however, to give worn manganese steel parts 2½ to 3 times their original service life by using nickel manganese plus hard-facing with Colmonoy No. 1 electrodes. While manganese steel has good impact resistance, it doesn't compare with Colmonoy No. 1 in resisting abrasion, and abrasion always accompanies impact.

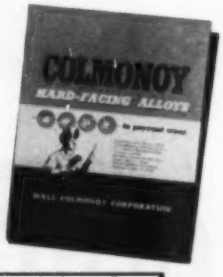
With shock absorbing manganese steel as the "core" of the part, and abrasion resistant Colmonoy No. 1 as the protective "case" of the part, a maximum service life is assured users of manganese steel equipment.

Colmonoy No. 1 is used extensively on carbon steel parts as well. It is a low priced electrode that is easy to apply. Any weldor can put it on. Let us send you our descriptive pamphlet No. 102, and our Engineering Data Sheet No. 23.

Colmonoy stands for a complete line of hard-facing alloys. Each alloy is resistant to a certain combination of abrasion, corrosion, impact, and heat. Colmonoy alloys come in various forms to suit different applications: oxy-acetylene rods, electrodes, paste, powder, wire, and castings.

Colmonoy Hard-Facing Manual

This new manual will make good hard-facing easier for you to do. It gives the characteristics of all Colmonoy alloys, typical jobs on which they are used (in every industry), full information on the Sprayweld Process, castings, finishing methods, etc. The manual was printed for you . . . write for yours today.



HARD-FACING ALLOYS

19345 JOHN R STREET **WALL COLMONOY** DETROIT 3, MICHIGAN

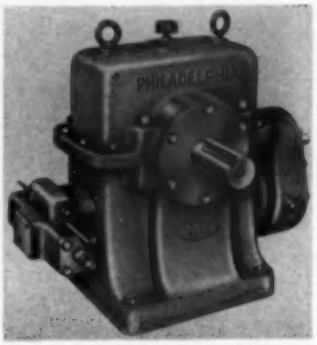
CORPORATION

BRANCHES: BIRMINGHAM · BUFFALO · CHICAGO · HOUSTON · LONG ISLAND CITY · LOS ANGELES · PITTSBURGH · MONTREAL · ORDER COLMONOY FROM YOUR LOCAL JOBBER

● Protected Speed Reducer

Automatic and instantaneous overload protection has been built into the new "Type HAT" Philadelphia Worm Gear Speed Reducer made by the Philadelphia Gear Works, Erie and G Streets, Philadelphia 34, Pa.

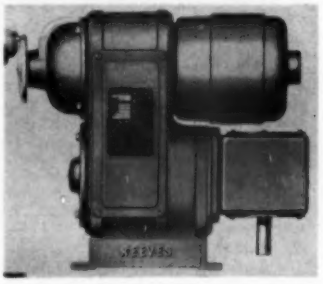
The reducer incorporates a feature, Double Torque Control, that cuts off motor current when the preset load limit is reached. Restarting is accomplished by the removal of the overload, no resetting or replacement of parts is needed. The reducer is made in a wide range of powers and speed ratios, and is recommended for use on conveyors, stokers, roll drives, and similar applications.



● Motor Speed Reducer

A variable speed drive with right angle speed reducer has been combined into one unit by the Reeves Pulley Company, Columbus, Ind.

The "Vari-Speed Motodrive Right Angle Reducer" uses a standard frame, type "C", face-mounted motor, a speed varying mechanism, and a new right angle worm gear reducer. This is available on all fractional hp. Motodrives, in horizontal or vertical models, and with speed ratios from 2 to 1 through 10 to 1.



In the horizontal models the output shaft can be up, down, or sideways, and at right angles in the vertical model. These reducers have an alloy steel helical worm and a bronze gear, and are built to withstand heavy duty, continuous operation. Speed is controlled by a handwheel but remote or automatic controls can be applied.

John Pendergast has been named sales promotion manager, Road Machinery Division, The Heil Co., Milwaukee, Wis.

The most economical air-entraining agent on the market!
NET WEIGHT
ERTRANE C
NOPCO CHEM
overcomes the disadvantages of conventional additives!

Nopco Ertrane* C has been specifically formulated to afford the cement producer an outstanding air-entraining agent that not only *saves time and labor,* but assures high quality air-entraining portland cement.

It is only necessary to add Ertrane C to water and stir. The agent dissolves quickly and completely.

No additional chemicals are required at any time.

Feed systems remain clean when Ertrane C is used — no time lost purging.

Profit by putting Nopco Ertrane C to work for you. Informative booklet and full information are available upon request.

*Reg. U. S. Pat. Off.

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EVOLVED THRU RESEARCH

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CHEMICAL COMPANY Harrison, N. J.

Branches: Boston • Chicago • Cedartown, Ga. • Richmond, Calif.

personal mention

W. A. ROBERSON, who has been in charge of engineering personnel for the Kelley Island Lime and Transport Company, Cleveland, Ohio, has been appointed chief engineer of the company, as of January 1, 1953. He will continue to make his headquarters at the White Rock plant, Clay Center, Ohio, but will head the engineering at all plants.

EARL C. HARSH, former chief engineer, retired from his duties on December 31, 1952.

MARDIS B. TURNER, formerly superintendent of the Material Service Corporation quarry in Lyons, Ill., has become plant engineer at the National Gypsum Company plant, National City, Mich., effective Jan. 2, 1953. A graduate of the University of Illinois, Mr. Turner has had fifteen years experience in the nonmetallic mineral field. He formerly worked with United States Gypsum Company, and also served as superintendent of the Material Service sand and gravel plant, Cayuga, Ind.

JAMES C. GRIFFIN has been promoted from assistant to superintendent of the Marquette Cement Manufacturing Company's Des Moines, Iowa, producing plant. He replaces J. C. BENNETT, who has been in ill health for some time. Mr. Bennett will continue his long association with Marquette on special assignments with the company's operating department.

Mr. Griffin joined Marquette at the Des Moines plant in 1937, and served in various departments there before his appointment as assistant to the superintendent in 1946.

The appointment of ROBERT F. QUINN as manager of advertising services, a new post, has been announced by National Gypsum Co. officials. Mr. Quinn was formerly advertising manager of Pittsburgh Corning Corporation of Pittsburgh. He has spent 10 years in the advertising and sales promotional fields. His headquarters will be at the company's Buffalo executive offices.

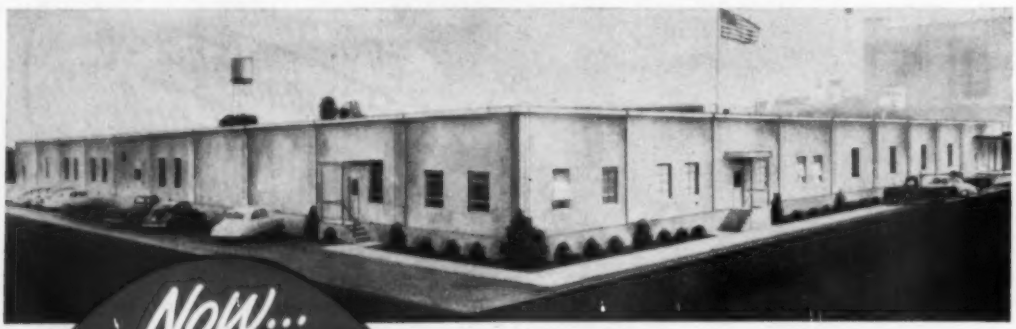
S. WALTER STAUFFER, who was formerly president and general manager of the National Lime Association (1936 to 1946), was recently borne into national politics on the crest of the Republican election victory. He will become a congressman from the York, Pa., district.

RONALD DANIELS, vice-president of the Federal Cement Company, Buffalo, N. Y., has been appointed to fill a vacancy on the Town of Hamburg Planning Board. Mr. Daniels recently was elected president of the National Mineral Wool Association.

SIDNEY T. KEEL, formerly domestic sales manager, rock phosphates, Phosphate Division, International Minerals & Chemical Corporation, has been promoted to the position of sales manager of rock phosphates, effective January 1.

Mr. Keel, who has been associated with International for 12 years, was first employed by the Phosphate Division in its Tennessee mining department. Prior to becoming domestic sales manager in July, 1951, he served as manager of the southern district of the phosphate sales department.

At the same time it was announced that ROBERT L. BORG, formerly division traffic manager of International's Florida phosphate operation, has been made northern district sales manager, rock phosphates. Mr. Borg first joined International over 15 years ago in the accounting department in New York City.



Now...
A Big New Plant for Better... More Dependable Deliveries of
HAMMOND Multi-Wall BAGS

To serve our customers better in the Midwest and Southwest, Hammond has built a big, modern plant in Pine Bluff, Arkansas. Exclusively devoted to the manufacture of Multi-Wall bags, this plant is equipped with multi-color printing presses and high speed modern machinery assuring economical and efficient operation. For you, our customers, this means superior quality and better service.

The Pine Bluff plant is located on two trunk line railroads and in addition has excellent facilities for shipment by truck assuring our customers in the Midwest better delivery service.

For Multi-Wall bags, "make it a habit to depend on Hammond."

HAMMOND BAG & PAPER COMPANY

General Offices: WELLSBURG, W. Va. *Plants in* WELLSBURG, W. VA. and PINE BLUFF, ARK.

Representatives in the following cities:

CHICAGO, ILL. • BLUEFIELD, VA. • CHARLOTTE, N. C. • KANSAS CITY, MO. • MINNEAPOLIS, MINN. LIGONIER, PA. • WASHINGTON, D. C. • NEW YORK, N. Y. • COLUMBUS, OHIO • HOUSTON, TEXAS

Promotion of ROBERT W. MCELROY to the newly-created position of director of safety and security for Minnesota Mining & Manufacturing Company and its subsidiaries has been announced. At the same time JEROME M. MAYER was named manager of fire protection.

Mr. McElroy will co-ordinate all phases of safety, security, and fire protection in 3M plants, warehouses, and offices and also those of 3M subsidiaries.

Mr. McElroy has been plant protection manager at 3M since 1945. Prior to that he was director of protection for the Rocky Mountain Division of Montgomery Ward & Company. He is chairman of the plant protection division of St. Paul civil defense.

Mr. Mayer has been 3M safety engineer since 1945. For 18 years previously he was safety engineering inspector with the National Inspection Company of Chicago.

Five appointments in various divisions of Kaiser Aluminum & Chemical Corporation have been announced. RALPH E. KNIGHT, formerly assistant general manager, chemical division, has been promoted to a vice presidency, and will assume the duties of director of research and development for the Aluminum and Chemical divisions. W. R. WOODMAN, formerly manager of Chemical division operations, has been named manager of the Aluminum division's raw material operations. FRANK M. CASHIN, who has been general sales manager of the Chemical division, becomes manager of the Chemical division. JACK W. WATSON JR., formerly West Coast manager of Aluminum Sales, has been appointed assistant to the vice president and general manager of the Corporation. R. A. FRATUS, assistant to the comptroller, assumes a newly established position as head of the Analysis and Planning department.

JACOB S. COXEY JR., president and chairman of the board of the Industrial Silica Corporation, Youngstown, Ohio, has retired as president, effective January 1, 1953, because of ill health. Mr. Coxey will continue to serve as chairman of the board.

Mr. Coxey had served the company for 23 years. He became vice-president in 1945 and subsequently president.

Concurrently with the announcement of Mr. Coxey's retirement the following new appointments were released: P. GRANT FORMAN was elected president; MYRON E. ULLMAN, vice-president; and W. GLENN BELL, manager of the order department. All these appointments were assumed on January 1, 1953.

Mr. Forman has been associated with the Industrial Silica Corporation since 1931 as works manager, then vice-president (1941), and finally, executive vice-president (1951).

Mr. Ullman has been a member of the board of directors and legal counsel since the organization of the company.

Mr. Bell, who was formerly traffic manager, succeeds Charles F. Eberhart, who retired on January 1, 1953, after many years with the firm.

AEROTURN "ON THE JOB"

. . . gives you

HIGH-EFFICIENCY DUST COLLECTING

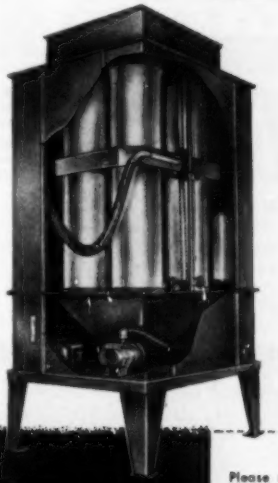
because it has . . .

1 Down-stroke, reverse-air-jet cleaning

2 Automatic pressure-operated control

3 Self-adjusting blow rings

EXCLUSIVE PATENTED FEATURES



Pioneered and developed by Turner & Haws Engineering Company, Incorporated. These high-efficiency AEROTURN features can solve your dust collecting problem. These patented* features guarantee you plus-performance and trouble free operation.

Send today for additional information about AEROTURN dust collectors. Fill in and mail the coupon below.

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BOSTON 32, MASS.

Please send me your latest AEROTURN folder by return mail.

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T

trade notes

The appointment of W. L. Davies as Eastern District Representative has been announced by Athey Products Corporation, Chicago, Ill. Mr. Davies' territory will include Washington, D. C., Maryland, and Eastern Pennsylvania.

The appointment of C. W. Scholvin as district manager for the Schield Bantam Company, Waverly, Iowa, in a newly created sales territory covering eastern Ohio, Pennsylvania, West Virginia, Virginia and Maryland, has been announced.

Macwhyte 6x25F PREformed Monarch Whyte Strand Wire Rope with I.W.R.C.

How many moving parts?

In this particular rope construction, there are 199 individual wires. Each is a carefully designed "moving part."

To assure highest quality, all stages of wire manufacture and rope fabrication are closely controlled. Each wire is protected with a film of lubricant that is force-fed cold during the fabricating. May our engineers recommend the right rope for *your* equipment?

GET THE RIGHT ROPE FOR YOUR QUARRY EQUIPMENT

MACWHYTE WIRE ROPE

Ask for G-15 Handbook

MACWHYTE COMPANY
2987 Fourteenth Avenue, Kenosha, Wis.
Mill depots: New York • Pittsburgh Chicago • St. Paul • Fort Worth Portland • Seattle • Los Angeles
Distributors throughout U.S.A.

COMPLETE CRUSHING PLANTS
designed and equipped by **FARREL-BACON**

Farrel-Bacon provides a complete engineering service, including design of plant and supplying all equipment from primary crusher to bin gate. Jaw-type crushers are available in sizes from 60" x 48" to 10" x 7" *Write for complete information.*

FARREL-BACON
ANSONIA, CONNECTICUT

BA-5

W. L. Voegeli

W. L. Voegeli has been named to the newly created position of assistant director of engineering, Tractor Division, Allis-Chalmers Manufacturing Company, Milwaukee, Wisc., according to an announcement.

Starting with the company at the Wichita, Kan., branch in 1935, Voegeli was with the service department at Omaha, Neb., and at the home office until he became supervisor of the Technical Publications Department in 1946, and agricultural tractor sales manager in 1948.

Arkell and Smiths has announced the appointment of W. F. Nesbit as sales manager of their Eastern Division. Mr. Nesbit was formerly a Southern Division Sales Representative in the Texas area. His headquarters will be in the New York City sales office.

The Tool Steel Gear and Pinion Company of Elmwood Place, Ohio, held an open house for employees, families, and friends on November 1st to celebrate the completion of their new plant No. 2, located near Sharonville, Ohio. LeRoy R. Brooks, president, announced that the increased facilities at both the old and the new plant were intended to increase production thirty percent.

Robert L. Halsted has been appointed manager of Allis-Chalmers central region with headquarters in Cleveland, according to an announcement. He succeeds P. F. Bauer, recently named general manager of the Norwood (Ohio) Works, and manager of the apparatus department.

Joseph Bronaugh, manager of the Miami office, succeeds Mr. Halsted as manager of the Cleveland district office.

Galion Allsteel Body Company, Galion, Ohio, announced the appointment of Ray W. Warren as southeast special representative. He will direct sales and service of dump bodies, hydraulic hoists and hydraulic tailgates in Virginia, North Carolina, South Carolina, Georgia and Florida. Headquarters will be in Raleigh, N. C.

John L. McCaffrey, president of International Harvester Company, has announced that Harvester had acquired the stock of The Frank G. Hough Co., Libertyville, Ill., manufacturers of earthmoving, excavating, and material handling equipment. The Hough Company will become a wholly owned subsidiary of International Harvester.

James Edgar Mereness, 69, consulting sales engineer for Baldwin-Lima-Hamilton Corporation, Construction Equipment Division, died recently in Indianapolis, after a short illness.

The appointment of Leo M. Brown as sales manager of St. Paul Hydraulic Hoist, Minneapolis, Minnesota, has been announced.

L. M. Brown

Mr. Brown previously served as assistant sales manager at St. Paul Hoist and prior to that was a district manager serving St. Paul distributors in the South Central states.

Before joining Gar Wood in 1949, he was employed as a construction engineer for E. I. Dupont and sales manager for Truck Equipment Company, St. Louis, Missouri. He succeeds William F. Keeton who has resigned to enter business for himself.

The E. C. Ray Machinery Company, 2001 East Texas Avenue, Shreveport, La., was recently appointed distributor for Bucyrus-Erie gasoline, diesel and single motor electric convertible excavators, dragline buckets, Hydrocranes and Hydrohoes, according to a report.

This firm will serve that part of Louisiana north of and including the parishes of Vernon, Rapides, Avoyelles and Concordia.

Robert N. Conners, vice-president and general sales manager of the Chase Bag Company, has recently been appointed to the Advisory Committe of the Executive Research Council.

The Council is composed of selected business executives and cooperates with faculty members of Northwestern University who study national and regional economic problems of importance and interest to the community.

A. H. Jones, director of the Export Division, and Gifford V. Leece, executive vice president in charge of sales, Gardner-Denver Company, are making personal visits to study South American mining and construction problems.

Mr. Jones recently returned from an extensive tour through Venezuela, Puerto Rico and Cuba. As a result of observations made during this trip, he predicts that export business to South America will be good throughout 1953.

Mr. Leece left for Peru on a trip that will extend throughout the western area of South America, where considerable mining and construction work is underway.

In the final ratings of the independent board of judges in the "Financial World" Survey of Annual Reports, Pettibone Mulliken Corporation was judged as having the best annual report of the Rail Equipment category for the third year. The bronze "Oscar of Industry" trophy was presented to E. Joseph Seifert, president of the company, at the Annual Awards Banquet in the Grand Ballroom of the Hotel Statler, New York.

Purchase of the Lull Manufacturing Corporation, Minneapolis, Minn., by The Baker-Raulang Company, Cleveland, Ohio, was announced recently.

It is planned to operate the Lull organization as a wholly-owned subsidiary of Baker-Raulang under the name of the Baker-Lull Corporation. LeGrand Lull, founder of the Minneapolis company, becomes a director of the new subsidiary and the parent company as well.

Jim Jackson, sales representative for the Chase Bag Company in St. Louis, and well known amateur golfer, was picked recently as the most outstanding local athlete by a committee of Ozark A.A.U. officials.

The Euclid Road Machinery Company has announced the opening of a parts depot in the upper peninsula of Michigan to serve customers in that area.

The new office is located at 107 Lincoln Street, Negaunee, Mich., and is an extension of services provided by the Euclid factory branch at Hibbing, Minn. Walter Vranesh, formerly of Hibbing, has been appointed manager.

Bud E. Simonton has been appointed superintendent of the Toledo factory of the Chase Bag Company, it was announced recently. John F. Hilarski, asst. supt., will assist Mr. Simonton and continue to be responsible for the textile bag operation at Toledo.

J. E. Chadwick

J. S. Conway

Two changes in sales personnel of the Koehring Company, Milwaukee, Wisc., have been announced. John S. Conway, who was general sales manager, has been named vice-president in charge of sales and John E. Chadwick, with the company since 1945, was named sales manager.

In his new post, Mr. Conway will fill the vacancy created earlier this year when Julian R. Steelman was named president. Mr. Chadwick will return to the company after serving as western sales manager at the Kwix-Mix Company, a Koehring subsidiary. Previously he had been assistant sales manager for Koehring.

E. H. Howell retired on January 1, as manager of the Bemis Bro. Bag Co. plant at St. Louis. He was succeeded as manager by P. C. McGrath, who was assistant manager.

FLOMATON, ALABAMA: ANOTHER "TELL-TALE" TOWN

"TELL-TALE"
New Type C
Centrifugal
Sand and Gravel Pump

Six producers in this remarkable gravel deposit area on the Alabama-Florida line keep 15 pumps busy the year round. Eleven of these pumps are Pekor "Tell-Tales" and the "Tell-Tale" majority is growing. Flomaton appreciates high production, long life, economical operation and . . . prompt service from an always ample stock of replacement parts.

This patented and only pump that warns when it's time to re-line is now available in the improved Type "C" in 4", 6", 8", 6x8"-suction and 8x10"-suction, in either tough semi-steel or "best-in-the-long-run" Ni-Hard. Type "C" bulletin on request.

PEKOR IRON WORKS, INC.
LOCK DRAWER 909 ESTABLISHED 1892 COLUMBUS, GEORGIA

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Recently I received a letter from a reader of PIT AND QUARRY as follows: "For many years I have been a constant reader of your monthly legal writings, and I have profited by preparing myself, from a legal standpoint, to conduct my business in view of eliminating legal controversies and law suits. May I suggest that soon you write a legal article reviewing what, in your opinion, are the most important law suits decided the past few months. I mean law suits that are, in your opinion, most certain to impart valuable legal information to buyers, sellers, processors, producers, etc., of sand, gravel, rock, and other like products, and to save them money."

This suggestion appealed to me as being a good one. Immediately after receiving this letter, I began a review of the late and leading higher court cases likely to assist readers in avoiding expensive law suits, and at the same time, capable of advantageous use by lawyers to win favorable verdicts in unavoidable suits. None of the outstanding and the late higher court decisions cited in this article have been reported in the past or explained in these pages. Readers will do well to clip this article for future reference.

Must Hire Guards

According to a late higher court decision, a truck operator is liable for injuries caused by his failure to employ a competent guard to warn pedestrians and other persons of danger.

For illustration, in *De Roode v. J. S.*, 52 So. (2d) 736, the testimony showed facts as follows: A contractor was engaged in doing paving work in a subdivision. The ready-mixed cement was supplied by a concrete company in mixing trucks, which drove onto an area on parallel rows of mats 30 in. wide to pour concrete and then backed out on the mats. One of the trucks, while backing out, ran over the concrete inspector while he was examining the concrete.

In subsequent litigation the higher court held the company which owned the truck liable in heavy damages to the injured inspector. This court explained that it was the duty of the company to employ a man to warn persons of danger when its truck was backing. In this respect, the court said:

"If a driver undertook to execute this backing movement unaided, it was the grossest negligence to do so without making certain that there was no one in the rear who might be hurt."

Further testimony showed that the injured inspector was 67 years old and in reasonably good health for a man of his age, with a life expectancy of 10 years. As an inspector he earned an average of $50 per week. The wheels of the truck passed over and crushed his pelvic region and he suffered severe shock and sustained multiple fractures of the pelvic girdle, and crushing injuries to both lower legs, including a fracture of the internal malleolus of the left tibia, and multiple contusions of the abdomen, pelvis, and legs.

The higher court awarded the inspector $38,667 damages, saying:

"We have given very serious consideration to this question but have reached the conclusion that the total amount awarded, to-wit $38,667, is not inadequate, taking into consideration previous awards in other cases and also taking into consideration the decrease in the purchasing power of the dollar."

Don't Prejudice Jury

An important point of law that needs no repeating but which readers always should bear in mind is this: If either your lawyer or you perform any act or make any statement which is likely to prejudice a jury, you are certain to lose your law suit.

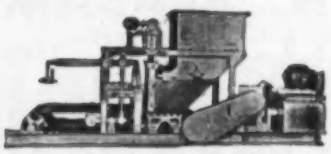
For example, in *Humkey v. H. Quarry Company*, 99 N.E., (2d) 351, it was disclosed that one Humkey sued the H. Quarry Company for damages for an injury incurred when the automobile in which he was riding was involved in a collision with a truck owned by the quarry company.

It appears that both vehicles were traveling in a generally westerly direction and that the truck owned by the Q. Company was to the front or ahead of the automobile in which Humkey was riding. The Ford dump truck owned by the Q. Company was a four-wheel, long-base dump truck, with a bed 6 ft. wide and about 10 ft. long. It was equipped with dual wheels and weighed 6,500 lb. when empty. As the automobile in which Humkey was riding approached a bridge, a collision occurred.

In subsequent litigation the jury decided that Humkey, and not the driver of the quarry company's truck, was responsible. Hence, the jury held that the quarry company need not pay any damages to Humkey.

Humkey appealed to the higher court and proved that the quarry company's lawyer had stated to the jury "there is no insurance in this case".

★ The SCALE of the YEAR ★



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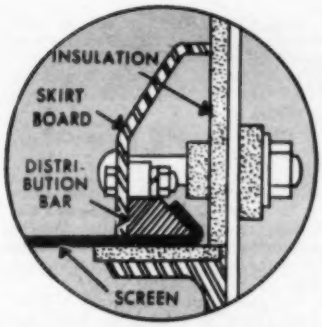

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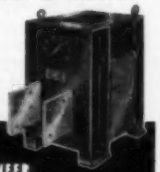

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The higher court reversed the jury's verdict, and said:

"We are of the opinion that the statement concerning insurance should not have been made to the jury by the H. Quarry Company's counsel."

This court explained that such a statement naturally would prejudice the jury in favor of the quarry company.

Fair Rental Value

Considerable discussion has arisen from time to time over the legal question: "If operators of a quarry, gravel pit, or the like, cause damage to adjacent land, what is the proper basis for a valid damage allowance?"

According to a late higher court decision, the answer is: The rental value of the land, and *never* what a jury may decide after inspecting the land.

For example, in *W. I. G. Company v. Opp,* 99 N.E. (2d) 265, it was shown that one Opp owned a tract of land He alleged that through gravel mining operations by the W. I. G. Company, it collected water on the real estate which seeped into and upon the adjacent land of Opp, by reason of which, he suffered damages to his land and growing crops. There was evidence that the tract of 15 acres could not be planted because of the water. The jury returned a verdict of $6500 in favor of Opp, because the jurors "inspected" Opp's land and decided that he was damaged to the extent of $6500 by the water that seeped from the gravel pits operated by the W. I. G. Company.

The gravel company appealed to the higher court on the contention that the amount of allowable damages should have been arrived at, not by the jurors' inspection of Opp's land, but the damage allowance should have been based on "fair rental value of the land not farmed." The higher court agreed with this contention and reversed the jury's verdict, saying:

"The appellee (Opp) lays great stress upon the fact that the jurors viewed the premises. He asks, 'What better way can damage be shown than describing it in words and showing the truth of the claims by inspection?' In this regard the law is well established that anything the jurors saw cannot be considered as evidence and that damages can be recovered only upon evidence introduced at the trial, subject to proper instructions from the court. The measure of damages for the loss of the use of farm land for crops not planted is the fair rental value thereof on the market."

When Lien Is Valid

A recent higher court held that if a subcontractor makes a special contract with the property owner, his chances of collecting payment for work and materials is importantly increased. The rule of law is especially applicable if the general contractor defaults on the contract.

For example, in *Acme Glass Company v. Owens,* 232 Pac. (2d) 624, the testimony showed facts as follows: A property owner named Owens made a contract with a general contractor to construct a building. The general contractor never finished this building because his office manager became sick. Owens then fin-

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ished the building himself. The Midwest Marble and Tile Company had made a contract with the general contractor to install marble and tile, and without making a separate contract with Owens, proceeded to complete its contract. However, state law provides that a valid mechanic's lien must be filed within 60 days after material is completely installed. The marble company failed to file its mechanic's lien within this period of time, and in subsequent litigation the higher court held its lien invalid, saying:

"There is no evidence of any independent contract between Midwest Marble and Tile Company and Owens prior to the date of the installation. The burden of proof was on the marble company to establish an independent contract with Owens. Intervenor failed to meet this burden. No lien was filed within 60 days, and the intervenor (marble company) has no lien under the statutory provisions for a lien of subcontractor."

A different situation arose as to the Acme Glass Company. One of the officials testified that he went to Owens and there told him that he could not install the glass unless he agreed to pay for the installation. He (Owens) thereupon agreed to pay for the installation of the glass. Hence the higher court held that the glass company held a valid lien to secure payment for the material and installation work. Also, Owens was personally obligated to pay the contract price as he had agreed to be liable for payment.

State Compensation Protects Hospitals

Recently a reader asked this question: "Can a hospital avoid liability for negligent aggravation of a patient's injury, if the patient receives compensation under the State Workmen's Compensation Act?"

According to a late higher court decision, the answer yes. A late higher court laid down this new law: If the testimony proves that an injured employee applied for benefits under the State Workmen's Compensation Act and was paid benefits for total temporary disability, and the industrial commissioner paid all medical expenses for treatment of the original injury, and for the alleged subsequent aggravation which resulted from negligent treatment and malpractice by employees of hospital, the employee cannot recover damages from the hospital.

For example, in *Wheeler v. Logan General Hospital*, 98 F. Supp. 877, the testimony showed facts as follows: One Wheeler was injured in a slate fall and was taken to the Logan General Hospital for treatment. The employer held an insurance policy with the Workmen's Compensation Fund. The industrial commissioner determined that Wheeler's claim was compensable; and after requisite medical data was filed, began paying Wheeler $25 a week for total temporary disability, the maximum compensation allowable under law. Soon afterward Wheeler's injury became aggravated, and he sued the Logan General Hospital to recover damages for alleged negligent treatment and malpractice.

The higher court refused to hold Wheeler entitled to recover damages from the Logan General Hospital, saying that Wheeler had been paid adequate compensation under the State Workmen's Compensation Act.

What Is Legal Nuisance?

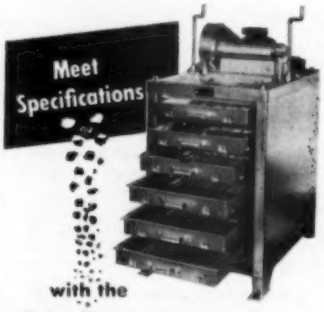
Modern higher courts consistently hold that a "legal nuisance" is anything that affects the normal enjoyable rights or health of citizens. According to a late higher court decision, operations causing noise may be a legal nuisance during night time, but not during the working day.

For illustration, in *Rochester v. Charlotte*, 114 N. Y. S. 37, it was shown that a suit was filed against a company which unloaded nonmetallic materials from railroad cars of the hopper type. It was argued that the noise produced is a "public" and "legal nuisance."

The higher court said: "We find that the noise caused by the operation of the shake-out by day, while annoying and disturbing, has not been shown to be injurious to the public health."

This court, however, rendered an injunction against unloading the cars during the hours 6 p.m. to 7 a.m. and on Sundays.

Arnold I. Thorsen, works manager, Allis-Chalmers Manufacturing Co., Norwood Works, has been appointed assistant director of manufacturing of the company's general machinery division, according to an announcement.



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CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 89270 (2)—Proposed to establish on sand, all kinds, or gravel, in open-top cars or in closed equipment (including open-top cars protected by tarpaulin or other protective coverings), carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply from Gravel Pit, Ohio, to Teays, Ohio, in open-top cars 189 cents per net ton and in closed cars, 217 cents per net ton.

Docket 89269 (1)—Proposed to establish on crushed stone, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Monon, Ind., to Manistee, Mich., 238 cents per net ton in open equipment and 287 cents per net ton in closed equipment.

Docket 89272 (1)—Proposed to establish on crushed stone, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Monon, Ind., to Galesburg, Mich., 166 cents per net ton in open car equipment and 183 cents per net ton in closed equipment.

Docket 89278 (2)—Proposed to establish on sand, all kinds, and gravel, in open-top cars, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Sandyville, Ohio, to Canfield, Ohio, 158 cents per net ton.

Docket 89294 (2)—Proposed to establish on sand, (except blast, core, engine, filter, fire, or furnace, foundry glass, grinding or polishing, loam, molding or silica) in open cars, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Wolcottville, Ind., to Maumee, Ohio, 100 cents per net ton, not subject to ExParte 175-B increase.

Docket 89295 (1)—Proposed to establish on crushed stone or crushed stone screenings, in bulk, in open-top cars, carload, minimum weight 90 percent of the marked capacity of car, except that when car is loaded to full cubicle or visible capacity, actual weight will apply, from Spore, Ohio, to Teays, Ohio, 201 cents per net ton.

GENERAL FREIGHT TRAFFIC COMMITTEE

Eastern Railroads

Bulletin G-6990 (Carrier)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload, minimum weight 30 tons from Durbin, Ohio, to New Market, N. J., $4.80 per net ton in open cars and $5.29 per net ton in closed cars; to Houlton, Me., $9.09 per net ton in open cars and $9.58 per net ton in closed cars, subject to ExParte 175-B increase, rates also to apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

Bulletin G-7006 (Carrier)—Proposed to establish on slag, crushed or crushed commercial, product of iron and steel furnaces unsuitable for further extraction of metals, in open-top cars, carload, minimum weight 90 percent of marked capacity of car, from Ashland, Ky., to Marion, Va., $3.04 per net ton, subject to ExParte 175-B increase.

Bulletin G-7027 (Carrier)—Proposed to establish on stone, natural (other than bituminous asphalt rock), crushed, carload, minimum weight per note 2 of New York Central Railroad tariff ICC 1299 from Mill Hall, Pa., to Buffalo and Suspension Bridge, N. Y., $2.79 per net ton in open cars, $3.29 per net ton in closed cars, subject to ExParte 175-B increase.

Bulletin G-7039—Proposed to establish on slag, crushed (the product of iron and steel furnaces) in bulk, in open-top equipment, carload, minimum weight 90 percent of marked capacity of car from Struthers, Ohio, to Snydersburg, Pa., $2.07 per net ton, subject to ExParte 175-B increase.

Bulletin G-7052—Proposed to establish on limestone, natural, ground, or pulverized, unburned, carload minimum weight 30 tons from Woodville, Ohio, and other northwestern Ohio Group 1 origins to Marion, N. Y., $4.20 per net ton, in closed cars; $3.71 per net ton in open-top cars, subject to ExParte 175-B increase.

Bulletin G-7060—Proposed to establish on sand, (except sand, molding, bonded, naturally or otherwise, and except ground or pulverized sand) and gravel, carload, minimum weight per Note A, from Madison, Ohio, to Randallsville, N. Y., $3.89 per net ton, in closed cars and $3.40 per net ton in open-top equipment (Note B), subject to ExParte 175-B increase.

Note A—Minimum weight 90 percent of the marked capacity of the car, except that when car is loaded to full visible or cubical capacity, actual weight will apply; but orders will not be accepted for closed and open-top cars of less marked capacity than 60,000 lb. and 80,000 lb., respectively.

Note B—Rates will not apply on shipments in cars with tarpaulins or other protective covering. In such instances, the rates applicable on shipments in

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closed cars are to be assessed.

Bulletin G-7138 (Carrier)—Proposed to establish slag, crushed (the product of iron and steel furnaces), in bulk, in open-top equipment, carload, minimum weight 90 percent of marked capacity of car, from Buffalo, N. Y., to Johnsonburg, Pa., $1.95 per net ton, subject to ExParte 175-B increase.

PACIFIC SOUTHCOAST FREIGHT BUREAU

Docket 3271 (S)—Proposed to establish on silica sand, carload, Mead Lake and Glassand, Nev., to San Diego, Calif., 23 cents per hundredweight, minimum 50 tons.

Docket 3258 (S)—Request rate of 20 cents on rock, lime, in closed cars from Victorville, Calif., to Phoenix and Mesa, Ariz., minimum 30 tons.

NORTH PACIFIC COAST FREIGHT BUREAU

Docket NC 2744 (S)—Proposed to establish on silica rock in open cars, carload, (a) Newport, Wash., to Portland, Oreg., request 17 cents per hundredweight, minimum 50 tons, (b) Newport, Wash., to Tacoma, Wash., request 15 cents per hundredweight, minimum 50 tons.

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

Docket A 12389 (c)—Proposed to establish on limestone, ground or pulverized, in closed cars, carload, 40 tons, except when loaded to full cubical or visible capacity, actual weight will apply to Tamms, Ill., from Sparta, Tenn., 375 cents and Cartersville, Ga., 408 cents per net ton, rates not subject to X 162-6-8.

SOUTHWESTERN FREIGHT BUREAU

Docket 62686 (S)—Proposed to amend item 2325-B, Southwestern Lines tariff 270-B, by establishing rates on crushed stone, from Salida, Colo., to Ft. Sumner, N. M., and Hereford, Tex., in cents per net ton, not subject to X-162-66-68, as follows:

To	Col. 1	Col. 2
Ft. Sumner, N. M.	390	438
Hereford, Texas	373	421

TRUNK LINE TERRITORY RAILROADS

Docket TL M-2542 (Shipper)—Proposed to establish on crushed stone and stone screens, carload, minimum weight 90 percent of marked capacity of car, from Botts, Pa., to Western Maryland Railway stations—Canton, Highlandtown, Orangeville, Patterson Park Yard, Md., (a) $2.26 (b) $1.95; Leonard Siding, Mt. Winans, Westport, Md., (a) $1.71, (b) $1.58, etc.

TRUNK LINE TERRITORY RAILROADS

Docket TL M-2520 (Carrier)—Proposed to establish on limestone, ground pulverized, in open cars not protected by tarpaulin or other protective covering, carload, minimum weight 90 percent of marked capacity of car from Watertown, N. Y., to Malone, N. Y., $1.65 per net ton, subject to ExParte 175-B increase, to be issued to meet motor truck competition and to expire with February 28, 1954.

Docket TL M-2545 (Carrier)—Proposed to establish on sand or gravel, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply, but in no case shall the minimum weight be less than 45 tons, applicable only on shipments loaded in open-top cars, from Petersburg and Hopewell, Va., to Bristol, Va.-Tenn., $2.10 per net ton, subject to ExParte 175-B increase.

Docket TL M-2562 (Shipper)—Proposed to establish on rock, ganister, not ground, carload minimum weight 90 percent of marked capacity of car, from Latrobe, Pa., to Bethlehem, Pa., $3.28 in open-top cars, $3.77 in closed cars. Rates per net ton, subject to ExParte 175-B increase.

WESTERN TRUNK LINE COMMITTEE

Docket E-41-1685 (S)—Proposed to establish on stone, crushed, including ground or pulverized limestone, in bulk, bags, or barrels, carload. Amend item 2325-B Southwestern Lines tariff 270-B by establishing rates in cents per ton of 2,000 lb., subject to X-175-B from Salida, Colo., as follows:

To	Col. 1	Col. 2
Ft. Sumner, N. M.	390	438
Hereford, Texas	373	421

Docket D-25-353—Plaster, gypsum and related articles described in Sections 1 and 2 of Item 50-A, Western Trunk Line Tariff 324-B, Agent L. E. Kipp's ICC A-3762 Blue Rapids, Kans., to Teays, Ohio. Amend Western Trunk Line tariff 324-B by adding Teays, Ohio, located on N.&W. and C.&O. as destination (Group 172) at rates presently in effect to Piketon and Wakefield, Ohio.

Docket X-E-41-1688 (C)—Proposed to establish on crushed stone or rip rap, minimum weight 90 percent of marked capacity of car. Golden and Mt. Olivet, Colo., to Agra, Kans. Proposed, $3.19 per ton of 2,000 lb., subject to X-175 increase.

Docket E-41-1686 (S)—Proposed to establish on sand (other than ground or pulverized) in open equipment. Gravel, minimum weight 90 percent of marked capacity of car, except that when loaded to full visible capacity, actual weight will apply, but not less than 20 tons. Anson and Eau Claire, Wis., to Camp McCoy, Wis., 108 cents per net ton, subject to X-175-B increase. Subject to expiration date of September 16, 1953.

Docket E-41-1656 (S)—Proposed to establish on stone, crushed or ground, in closed cars, carload minimum weight 90 percent of marked capacity of car, except that when actual weight of shipment loaded to full visible capacity of car is less than 90 percent of marked capacity of car, actual weight will be the minimum weight. In no case shall the minimum weight be less than 20 tons; from Weeping Water, Nebr., to Crete, Nebr., $1.10 per net ton, subject to X-175-B.

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Nearly everyone realizes the advantages of belt conveyors for low-cost transportation of bulk materials. But what goes on below the belt is, perhaps, too often taken for granted. Certainly, the belt idler, more than any other piece of equipment, is responsible for the low cost of belt conveying per ton of material handled.

That's why Rex® Idlers are so often specified. Rex has been the leader in idler design and construction for over 25 years and sets the standard that others are working toward.

An idler must "keep rolling." If it freezes up, the belt will quickly wear through the roll, leaving sharp edges to cut your belt. The most common causes of idler "freeze-ups" are grit and dirt entering the bearings and build-up of material underneath the roll. To keep your Rex Idlers rolling, all you have to do is *keep your deck plates clean.* This will prevent material from building up on the rolls. The Rex Triple Labyrinth Grease Seal does the rest. The grease is there only to keep out dirt and grit, not to lubricate. With the special Rex seal design, the grease stays in . . . the dust stays out.

Remember, your idlers are the backbone of your entire belt conveyor. Don't gamble. Insist on Rex and be sure of a trouble-free performance year after year. For all the facts call your nearest Chain Belt Field Sales Engineer or write for Bulletin 51-81. Chain Belt Company, 4604 W. Greenfield Avenue, Milwaukee 1, Wisconsin.

For over 25 years Rex idlers have been recognized as leaders in the field of idler design. Now Rex again leads the way with the flexible grease line. Note the accessible protected location of the fitting. Extension of tubing to far side makes it possible to grease all rolls from one side . . . substantially reduces maintenance time.

CHAIN BELT REX COMPANY ®

Chain Belt COMPANY
OF MILWAUKEE

Atlanta • Baltimore • Birmingham • Boston • Buffalo • Chicago
Cincinnati • Cleveland • Dallas • Denver • Detroit • El Paso • Houston
Indianapolis • Jacksonville • Kansas City • Los Angeles • Louisville
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Pittsburgh • Portland, Oregon • Springfield, Mass. • St. Louis • Salt
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Distributors located in principal cities in the United States and abroad

February, 1953

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT & QUARRY

Their Answer can be Your Answer!

STEARNS 15
STEARNS 50

These sturdy, dependable, one-man, concrete block machines are showing this two-plant Virginia concern how to increase business and profits through their *high production of top quality units with minimum labor and maintenance costs!*

VIRGINIA DUNBRIK COMPANY
INCORPORATED
Manufacturers of CRUSH BLOCK AND CONCRETE BRICK

December 31, 1952

Stearns Manufacturing Co., Inc.
Adrian, Michigan

Gentlemen:

In our more than fifteen years in the concrete products business, we have seen lots of machinery come and go. Our installation of the Stearns 15 plant at Lynchburg, and our Stearns 50 plant at South Boston during 1952 is proving to be our answer.

We are finding the Stearns 15 and 50 dependable; making a quality product in an area where quality is foremost. Our new blocks are bringing to us many new friends and customers. Our savings in labor and maintenance and our quantity production make it a pleasure to face the future.

These plants at Lynchburg and South Boston welcome visitors, and you may refer those interested to drop in and make their own comparisons.

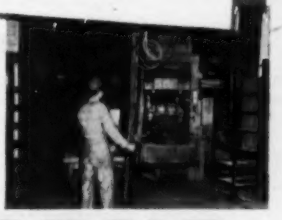
Again thanking you for your care and service.

Very truly yours,
VIRGINIA DUNBRIK CO., INC.

A. Kendall Sydnor
Secretary-Treasurer

AKS:JMJ

Here is the Stearns 15 in the Virginia Dunbrik Company, Lynchburg, Va. Installed last year, after 15 years of seeing "lots of machinery come and go," this new advance in the concrete products field for the larger plant makes 3-blocks-per-cycle and is adjustable 4-6 cycles-per-minute. Fully automatic—Unidirectional Vibration under Pressure—power handling of plain pallets—one-man operation.



The Stearns 50, here shown in the associated Boston Concrete Company, South Boston, Va., has all the outstanding features of the Stearns 15, except that it has a capacity of 2, rather than 3-blocks-per-cycle. Note its simple, rugged mechanism and heavy frame members for high stability. Turns out the same high quality block as the "15".

STEARNS
MANUFACTURING COMPANY · INC
ADRIAN • MICHIGAN

OWNERSHIP—THE KEY TO SUCCESS!

STEARNS 15 · STEARNS 50 · ZIPPERS · JOLTCRETES · MIXERS · SKIP LOADERS · TURNTABLES

Iron Mountain Atomic Storage Vaults, Germantown, N.Y.
Contractor: Herman Knaust, Germantown, N.Y.
Block by: Hudson River Block Company, Ravena, N.Y.

250,000 DURAPLASTIC*-MADE BLOCKS on guard at "SAFEST VAULT IN THE WORLD"

Tunneled deep into the heart of New York's Iron Mountain, this storage vault is designed to protect the vital records of many firms against atomic attack. 250,000 concrete blocks made with Atlas Duraplastic finish off the stronghold and give additional protection from moisture. Duraplastic-made products are known for their increased resistance to the passage of water.

Good appearance of Duraplastic-made blocks is another characteristic. Manufacturers report edges and corners are clean-cut and truer. Duraplastic cement makes a more cohesive and "rubbery" mix that holds together better... feeds easily through machines. Moreover, plants using Duraplastic report reduction in breakage of green products, fewer culls and throwbacks.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N. Y.

GOOD APPEARANCE of concrete blocks made with Atlas Duraplastic is emphasized by this photo of individual vaults. Duraplastic is also preferred for machine-made concrete pipe, brick, drain tile, silo staves, and other concrete products.

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company

PQ-D-144

ATLAS® **DURAPLASTIC**
AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

The CONCRETE MANUFACTURER February 1953

Ike, Please Note

AMID all the fanfare attendant upon a change of administration it would be easy indeed to lose sight of the sober overtones which inevitably accompany the event. No system as complex as our modern Federal government can undergo a complete change of management without developing internal stresses of considerable magnitude, and whether or not these stresses become disruptive must depend in large measure upon how suddenly the new managers attempt to deviate from the policies of their predecessors.

There is an understandable tendency for any new administration to interpret its success at the polls as a mandate from the people to institute as many changes as possible in as brief a period of time as can be managed. This view is sheer nonsense, and we fervently hope that the Republicans will evaluate their thumping plurality of last November on a far more intelligent and realistic basis. Unquestionably millions of Americans used their ballots as an endorsement of the "time for a change" issue which was stressed so constantly throughout the campaign, but it would be utterly reckless to interpret mere willingness to change administrations as indicative of a desire to set the clock back twenty years.

We doubt very seriously if any administration in our entire history has ever had a mandate from the people to do more or less than provide wise and honest government to the best of its ability. Even that seems to be a pretty tall order at the present moment in history, and it should give the Republicans plenty to do for a while.

There are actually many compelling reasons why the new administration should try to ease into its responsibilities with as few abrupt policy shifts as possible. Even when they are in power it appears to be contrary to their nature for political parties to accumulate wisdom, so it seems fair to assume that after two decades of bench warming the G.O.P. isn't in the best possible shape to shoulder its new burdens. It is always possible, of course, that the party and its leaders may have learned a little during their prolonged sojourn on the sidelines, but the experience certainly failed to produce the one important and useful thing it might have begotten: a spirit of humility.

Indeed, there is abundant evidence of an entirely contrary spirit. In a recent public statement House Speaker Martin made the flat observation that the final result of the Roosevelt-Truman years is "a staggering burden of debt to blight the hopes and dim the opportunities of generations yet unborn . . . The American people will not soon forget this shameful record of broken promises and financial irresponsibility."

Well, when it comes to a question of irresponsibility, Mr. Martin is no slouch himself, if he believes that twenty years of very real and far-reaching social progress can be written off in any such casual fashion as this. We believe, moreover, that if he and his party go ahead on that narrow premise, they will inevitably run into serious trouble. Unquestionably millions of Americans hope that the new administration will do everything it can to place the Federal government on a sound fiscal basis, but they, and a great many others who don't care a hang about fiscal policy, will quickly repudiate leadership which has no other aim than the maintenance of balanced budgets.

William M. Avery

Another Leader★ IN THE PRODUCTS INDUSTRY PREFERS BESSER VIBRAPACS!

★ This is the 97th of a series of ads featuring leaders of the industry who are stepping up block production with Vibrapacs.

Edward O. Earl, President, and Howard Cresswell, Vice President of San Xavier Rock & Sand Company, Tucson, Arizona

"...we firmly believe that Besser Block Equipment is still the finest available"

This statement by Mr. E. O. Earl, President of San Xavier Rock & Sand Co., reflects his high regard for Besser Super Vibrapac machines. The San Xavier concern is a large construction company, specializing not only in concrete block production, but also in road building, sewer and sidewalk construction and general contracting.

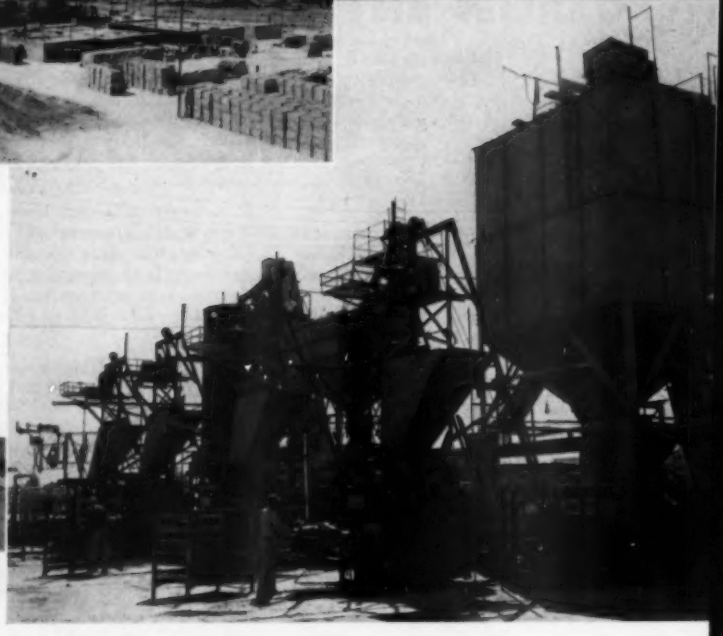
Concrete masonry, in Tucson, is a very popular building material. One of the reasons for its popularity is the high quality block produced by San Xavier. This company operates four Besser Super Vibrapac machines — two of which were purchased before the Vibrapac Agreement was in operation and two under this Agreement plan. Company officials are doing an excellent job promoting Vibrapac Block throughout Southwestern Arizona.

Besser Vibrapacs are profit-making machines for San Xavier because they are fully automatic and continue to operate, day after day, week after week, with no "downtime". They can do the same for YOU! Write today for literature.

BESSER MANUFACTURING CO., Alpena, Mich., U. S. A.

Battery of four Besser Super Vibrapacs installed "in the open". All four machines are fully automatic. Hand labor is reduced to pushing switch buttons and guiding power off-bearing hoists.

Exterior view of the San Xavier plant which produces lightweight concrete masonry units. Note large stock of cubed block for ease of handling in delivery.



Mountain View Presbyterian Church in Tucson built with Vibrapac Block supplied by San Xavier. Note half height units which are very popular in the area.

BESSER

BATCH MIXERS · SKIP LOADERS · BLOCK & BRICK CUBERS · SUPER VIBRAPAC · SINTERING PLANTS · ACROW CENTERS · ROOF TILE MACHINE

A 7188-1PB-

news of the concrete industries

Sam Paturzo Elected 15th N.C.M.A. President At Annual Convention

Last-minute bulletins from the National Concrete Masonry Association convention announced the results of the annual election. Sam Paturzo, vice-president and secretary of V. Paturzo, Bro. & Son, Baltimore, Md., was named president, succeeding A. G. Streblow, president and general manager of Basalt Rock Company, Napa, Calif.

Mr. Paturzo has served three terms as an N.C.M.A. director, and before his election to the presidency was the association's vice-president. He has been associated with the concrete block business for many years, having entered the field at the age of 17. A member of the Home Builders Association of Baltimore and of its code committee, Mr. Paturzo is also a former member of its board of directors.

Named to serve five-year terms as directors were the following: Phil Paoiella, Plasticrete Corporation, Camden, N. J.; Albert Waters, The Carter-Waters Corporation, Kansas City, Mo.; and Herbert Vincent, Cinder Block, Inc., Detroit, Mich.

A full report of the N.C.M.A. convention, with portraits of the newly-elected officers, will appear in our March issue.

Great Lakes Russ-Stone Co. Producing New Building Unit

The Great Lakes Russ-Stone Company, North Judson, Ind., began production of Russ-Stone, a concrete masonry building stone, in December of last year. Although new in the northern Indiana district, the product has been used in the Midwest and the Pacific coast area for several years.

Company officials include William R. Van Hook, president; Frank Culver, general manager; Leander Friedl, chief engineer; and Harold Van Hook, production manager. At an open house on December 20 the company displayed their product and their production facilities to the public.

New North Carolina Concern To Build Plant at N. Charlotte

Concrete Materials Inc., a newly organized firm, is planning construction of a ready-mixed concrete plant in North Charlotte, N. C.

The new plant is planned to use automatic controls and bulk handling methods. A 4½-cu. yd. batcher and a 3-cu. yd. mixer are included in the design.

Otis H. Manchester Jr., secretary-treasurer of the Concrete Transport Mixer Company, St. Louis, Mo., was recently elected chairman of the Truck Mixer Manufacturers Bureau of the National Ready Mixed Concrete Association. Mr. Manchester was nominated at the annual meeting of the bureau in December, 1952, in Chicago. He succeeds K. W. Horsman, and will serve until December, 1953.

New Association Organized By Pennsylvania Producers Of Concrete Products

An organization formed recently by concrete block manufacturers in eastern and central Pennsylvania "to promote the general welfare of the concrete masonry industry" has been named the Eastern Concrete Products Association.

Headquarters of the new organization are at 221 E. Orange Street, Lancaster, Pa. The following officers were elected by the members:

President, Harry H. Longenecker, Building Units, Inc., Primos, Pa.; vice-presidents, Thomas F. Bausman, Harrisburg Building Units, Harrisburg, Pa.; and Walter W. Sipe, York Building Products Company, York, Pa.; secretary-treasurer, H. Melvin Binkley, Binkley and Ober, East Petersburg, Pa.; and executive director, Ira F. Honaman.

E. P. Barber Co. Transfers Ownership to Paul D. Foster

The E. P. Barber Company, Bloomington, Calif., has transferred complete ownership of its enterprises to Paul D. Foster, 1930 Wilshire Blvd., Los Angeles 5, Calif.

The firm is operating as two separate entities: The Bartile Corporation of America, which is offering franchises for the manufacture of Bartile, and the Bartile Manufacturing Company, which sells tile to the California market.

Coming Events

February 9 and 10, 1953—Toronto, Canada. Fourth annual convention, National Concrete Products Association (Canada). King Edward Hotel.

February 9-11, 1953—Boston. Annual meeting, American Road Builders' Association. Hotel Statler.

February 17-19, 1953 — Boston. Annual convention, American Concrete Institute. Statler Hotel.

February 23-26, 1953—San Francisco. 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

February 25, 1953—Dallas. Fourth annual convention and meeting, American Concrete Pressure Pipe Association. Baker Hotel.

February 26, 1953—Dallas. Third annual convention and meeting, American Concrete Agricultural Pipe Association. Baker Hotel.

February 26-28, 1953 — Dallas. 45th annual convention and meeting, American Concrete Pipe Association. Baker Hotel.

Scale on Fork-Lift Truck Insures Capacity Payloads And Prevents Overloading

Capacity payloads on its delivery trucks, without the risk of stiff fines due to overloading, are now possible at the concrete block plant of Precast Concrete Products in Long Beach, Calif., since the concern installed a handy lift-truck scale on the fork-lift unit which loads the cubed blocks onto the flat-bed trucks.

The Precast plant produces both regular concrete and lightweight blocks in a variety of sizes and shapes. The units are cube-cured in the yard after coming from the steam rooms. Until the lift-truck scale was installed, the accurate net payload on a truck was always a matter of conjecture since the units vary in weight, depending upon the moisture content, size, and type of block, mixed loading, etc.

The Martin-Decker 4000-lb. scale used at the Precast plant consists of a 6-in. dial gauge mounted on a Clark fork-lift truck. The dial gauge is accurately calibrated to the effective area of the hydraulic-lift cylinder and is actuated by the hydraulic pressure which lifts the load. An adjusting screw permits manual regulation to zero, so that the truck operator can tell at a glance the exact net weight of each cube of blocks as it is lifted and deposited on the truck.

Other applications of the scale in the industry include its use in weighing aggregates with a scoop attachment on a lift-truck in concrete-batching plants, loading out sand and gravel, etc. The scales are available in several models ranging from 2,000 to 18,000 lb. capacities.

Recently a truck carrying an overload of concrete blocks was ticketed for weight violation by a traffic patrolman in the Los Angeles area and the owner fined $375 for his negligence—more than twice the cost of one of the scales which would have revealed the overloading ahead of time!

• A scale mounted on the floorboard of a lift-truck at the Precast plant in Long Beach, Calif., enables the operator to determine accurately the exact payload being carried by a truck.

• As indicated by the scale, this particular cube of 4-in. high units being loaded on the flat-bed delivery truck weighs exactly 2,150 lb.

The Kent Machine Company, Cuyahoga Falls, Ohio, has appointed, as exclusive representatives for Canada, the firm of Wettlaufer Equipment Ltd., Toronto, Canada.

Highway Research Board Issues Reference Work On Calcium Chloride

A review of all the significant literature on the subject of calcium chloride in concrete is available in the bibliography, *Calcium Chloride in Concrete*, recently prepared by the Highway Research Board.

This bibliography presents a complete reference and a source of information relating to the effect of calcium chloride on the properties of portland cement and concrete. Considerable information is given under each listing, and readers can easily tell the scope of the original article.

With listings of data from 1885 to 1952, and dealing with various practical aspects of concreting, this bibliography will be of interest to all who work with concrete.

Single copies of this 62-page important reference are available on request; ask for Bibliography 13 and write to the Calcium Chloride Institute, 909 Ring Bldg., Wash. 6, D. C.

Robert E. L. Graham Named Manager of Lith-I-Bar Company

R. E. L. Graham

The Lith-I-Bar Company, Holland, Mich., has announced the appointment of Robert E. L. Graham as vice-president and general manager.

Mr. Graham has a wide experience in business management including banking, sales, advertising, and government service. As a young man he left the banking field in Kansas City, to become credit manager for The Sherwin-Williams Company. He subsequently operated a brokerage company in New York City which financed and managed a number of large and diversified enterprises. At the start of World War II he became chief deputy of the Smaller War Plants Corporation.

During the later part of the war he reactivated a company and engaged in manufacturing war materials. Following this Mr. Graham served as a business consultant for several large organizations including the Puerto Rican Government.

J. C. Hain, Veteran Engineer In Field of Concrete, Dies

James C. Hain, 82, one of the nation's most prominent concrete construction engineers, died on December 4, 1952, in Pasadena, Calif. Mr. Hain was credited with building Boulder Dam and the foundation for the world's biggest telescope at Mt. Palomar, Calif. He was a native of Edgerton, Wis.

An engineering graduate of the University of Wisconsin, Mr. Hain was noted as a pioneer in the use of air guns in the laying of concrete.

Concrete Products Association Of Washington Holds Winter Meeting

THE twenty-fourth annual winter meeting of the Concrete Products Association of Washington was held in Seattle at the Construction Center on Friday and Saturday, December 12 and 13, 1952. The first speaker, F. Eldridge, Director and Chief Engineer of the Washington Control Pollution Commission of the State of Washington, very ably outlined the efforts of the Pollution Commission toward eliminating contamination of the waters of this State. W. T. Robertson, Supervising Bridge Engineer for the Washington Department of Highways, outlined the interest of his department in such precast concrete uses as bridges and bridge decking, snowshed roofs, concrete guard rail posts, small precast concrete bridges and reinforced concrete piling.

Ellis Cummins, chairman of the Association Pipe Research Committee, discussed a proposed project to be studied by the Division of Industrial Research at Washington State College. This is to be a study of the location of air vents in irrigation pipe lines to determine the distance from the inlet at which to place the vent, in terms of size of pipe and velocity of the water, as well as the size of the vent.

At the Saturday morning meeting, reports were heard from Association committees. J. W. Sullivan reported for the Summer Meeting Committee that the 1953 annual meeting will be held during June in the Monticello Hotel at Longview, Washington. The dates set are June 12-14, 1953.

For the Safety Committee, Ed Lowry gave the total of the direct costs to the Association members paid by the Department of Labor and Industries by reason of accidents in 1951. He reported that the total amount paid by the Department of Labor and Industries to Association employees was an average of $66 per man employed.

Mr. Lowry introduced R. M. Gilmore, Safety Consultant, who gave an analysis of the accidents reported by the Association members during the fiscal year of 1951 and 1952.

Mr. Gilmore recommended that the plants keep a record of Accident Frequency Rates in order to be constantly advised as to the extent of accidents suffered.

There was considerable discussion of "Labor Relations." It was reported that some of the unions are now thinking in terms of industry-wide labor negotiations on the west side of the State rather than negotiations with individual plants.

On Saturday afternoon the first speakers were R. H. Lochow and Gilbert Schuster of the Seattle office of the Portland Cement Association. They discussed "Tilt-Up Construction" as it is being done in the area and discussed the advantages and disadvantages of this method of construction. The cost of "Tilt-Up Construction," including the connecting pilasters, was given as between 90 cents and $1 per square foot of wall.

J. J. Leonard, Materials Engineer at the Fort Lewis Residency, discussed the criteria which had been formulated for good construction. He discussed the problems which had developed in the casting of pan type reinforced concrete floors in multi-story buildings, concrete floors in single story buildings, and control criteria for good concrete masonry construction. Mr. Leonard discussed particularly the need for a minimum moisture content in concrete masonry, and the difficulty of eliminating the practice of wetting concrete masonry units when they are placed in the wall in order to get a mortar bond. He stated, that with a mortar having good water retentivity, it would not need surface moist blocks to get a good bond.

Harlan H. Edwards, Construction and Supervising Engineer with Jones and Bindon, Architects, Seattle, discussed the need for proper design of concrete masonry buildings and showed a series of colored slides demonstrating good and bad design, and construction. Mr. Edwards's pictures were taken over a statewide area and were very illuminating.

Wallace Beardsley reporting for the Block Research Committee discussed the drying of concrete blocks being done by some of the member plants. He mentioned the proposed studies of reinforced concrete masonry by the National Concrete Masonry Association, cooperatively with the University of Wisconsin. He stated that this work will be under the general direction of R. E. Copeland of the N.C.M.A. and suggested, that if any investigation on reinforced masonry was contemplated in this area, that Mr. Copeland's committee be contacted toward the end that any work done by the Products Association will be coordinated with the Wisconsin Studies.

Max H. Miller, president of the United Cement Products Company, Wichita, Kans., was elected president of the Wichita Chamber of Commerce recently.

Students' Visit to Block Plant On B.I.E. Day Big Success

When the school board, the businessmen, and the Chamber of Commerce of Danville, Va., put on a Business Industry Education Day recently, one local industrialist, E. A. Boggs, capitalized on it in a big way.

Mr. Boggs, president of the Boggs Concrete Products Company, Inc., invited the students and teachers of the city to visit his plant. According to the *N.C.M.A. Reporter*, the affair was an unqualified success.

"During the tour," the *Reporter* states, "a tape recording was made of the many questions asked by the teachers, as well as the answers, concerning the aggregates, and the manufacture and construction of the block." Mr. Boggs has made the recordings available for the use of teachers.

Leaflets presented to the students the advantages of the concrete masonry products industry as a career. Students were also given information during their visit on the cost and capital outlay required in the manufacture of concrete block.

• Five engineers were added to the staff of Universal Concrete Pipe Company during the last year to assist in the design and sale of the company's complete line of concrete products. Pictured with Mr. Eschenbrenner, president of the firm (seated), during a three-day conference at the home office in Columbus, Ohio, are these engineering representatives from four of Universal's plants: Billy T. Sumner, Nashville, Tenn.; Henry Gabbe, Jessups, Md.; William H. Sprang, Pittsburgh, Pa.; and Robert H. Gates, St. Petersburg, Fla. Not shown is Byron A. Bledsoe, Atlanta, Ga.

Kansas City Block Firm Adds Lightweight Units

Cinder Concrete Products, Kansas City, Mo., has recently added the production of a new lightweight concrete block to its line of products. The new block is made with Clalite, an expanded shale lightweight aggregate. It supplements the production of cinder and heavyweight block already under way; and it is produced with the same machinery and equipment. Productive capacity at the Kansas City plant approximates 25,000 8-in. equivalents daily.

Cinder Concrete Products also operates a block plant in Denver, which began production of Clalite block two years ago.

Fairbanks, Alaska, Firm Builds Asphalt, Concrete Plant

The Selid Construction Company has recently begun the construction of a ready-mixed concrete and hot-mix asphalt plant to serve the Fairbanks, Alaska, area. The plant, which will be fully automatic, is located about six miles from Fairbanks on the Richardson highway; it will cost approximately $450,000. The plant is expected to begin operation about April 15, according to Ove C. Selid, president of the firm.

The Selid firm earlier supplied concrete and aggregates for the Ladd and Eielson air force bases.

Are You Really Insured Against Personal Injury Damage Suits?

another P&Q exclusive

ONE of the little noted consequences of inflation is the sharp rise in the amount of awards for personal injuries. There is a continuing liberality upon the part of juries awarding damages which, only a few years ago, would have been considered fantastic. Some observers believe this is because jurors feel that the damages come from an impersonal insurance corporation. It is doubtful, however, if this attitude can be

By HAROLD J. ASHE

depended upon to save an uninsured owner of a concrete products plant from an unbearable award should he be a defendant in such a suit.

Due in part to the growing complexities of our civilization, the incidence of accidents from which damage suits can arise is increasing. The public appears to be getting more damage suit conscious, with the result that those sustaining even the slightest and most superficial injuries rush to court, and often are rewarded handsomely for their efforts.

This situation is fraught with grave peril for a businessman if he is not insurance conscious, and if he is not alert to the fact that large awards are becoming more commonplace in damage actions.

Where a few years ago $1,000 might be awarded for a particular injury, the same kind of accident now may result in a $5,000 award. There is absolutely no assurance whatsoever that an award will bear any relationship to any other award for a like injury. Almost literally, the sky is now the limit in such damage actions. In this respect, a plant operator, mindful of today's 53-cent dollar, will miss having adequate protection even if he doubles the amount of the nominal insurance policies he may have had in the past.

As was observed in a court case many years ago: "Two things are unpredictable. One is the weather, and the other is the verdict of a jury."

To be really insured against the financial consequences of a damage suit for personal injuries, business ownership needs to consider two and possible three kinds of protection.

The first is general liability insurance. This covers the legal liability of the insured to others for accidents on his business premises. No matter how careful he is in guarding against accidents, there is the ever present possibility of an injury being sustained by a customer or other "invitee." A study of damage suits for bodily injury sustained on business premises demonstrates that accidents can and do occur in the most unlikely manner, and from seemingly the most remote hazards. The human element is always present in such accidents, and cannot be discounted in speculating about the possibility of an accident. What would not be an accident hazard to one person may result in an injury to another. Then it merely becomes a matter of the plaintiff's attorney demonstrating negligence upon the part of defendant.

While trying to anticipate accident hazards and remedying them, astute management will not fail to provide the additional protection found only in a general liability insurance policy. Preventive measures failing, management can meet any likely damage award and, at the same time, discharge its moral responsibilities to others.

The amount of insurance carried should be in line with the realities of present-day damage awards. A policy of $10,000 is woefully inadequate, taking care of only the most nominal claims. A $25,000 policy will provide a somewhat wider margin of safety. And $100,000 may not be too much to guard against an excessive award.

One suit, picked at random, was filed recently for $31,500 for permanent injuries sustained by an invitee as a result of a fall on business premises. Another suit asked for $22,000 for injuries involving a fractured leg. Larger suits and awards are not uncommon.

The second kind of insurance protection needed is to be had in an automobile bodily injury and property damage policy. Not only should trucks and other rolling stock be covered, but also passenger cars, including those not used in business by the owner. Not infrequently, an owner buys ample coverage on business rolling stock and neglects his personal car, or carries too little insurance on it. It is well to remember that a damage suit brought against a businessman using his car for pleasure can hit him as hard as though a truck were involved. The law makes no distinction, even though a good many businessmen do when buying such insurance.

It is significant that about one out of four businessmen are estimated to have no automobile bodily injury and property damage insurance. Of those having such insurance, about 30 percent have only the so called 5/10. That is $5,000 for any one injured person and $10,000 for each accident.

With the size of today's awards, $5,000-$10,000 is far too little. It means that those so insured are not attempting to insure themselves above these minimum amounts. Yet it is the awards above these figures that can hurt the most. It should be kept in mind that in losing a damage action, a defendant's business and all other assets are subject to attachment to satisfy the award. He can be wiped out by a disastrous automobile accident as certainly as though a fire destroyed his uninsured plant. Oddly enough, the same plant which is amply protected from fire is almost always at least partially exposed to attachment *via* a personal injury damage award, if it is excessive.

While most of those insured for automobile bodily injury and property damage now carry at least $10,000-$20,000, this is probably too little. More and more policies are now being written for $25,000-$50,000.

Premiums for higher insurance protection are relatively low. For instance, in one area the basic rate for a private car, non-business use, is $25 for $5,000-$10,000. The excess coverage to $25,000-$50,000 is $13.50, or 50 percent more for five times as much coverage. This lower rate for excess coverage is due to the fact that awards are fewer in the higher brackets. But the possibility of such a high award should not be discounted in buying a policy.

Indicative of the size of suits growing out of automobile accidents is one in which a woman sued for $50,605 for injuries to her back, cuts, and concussion. In another suit, the plaintiff sued for $950,000 for the death of his wife and personal injuries resulting from a truck-automobile collision. The jury awarded him $10,000 for his wife's death and $35,000 for his injuries. This points

(*Continued on page* 148.)

Wisconsin Block Makers Lay Plans For Cooperative Advertising Program

Also Discuss Technical Problems At Annual Convention in Milwaukee

AT their 33rd annual convention, held in Milwaukee on January 14 and 15, the members of the Wisconsin Concrete Products Association laid the groundwork for a broad new attack upon their problems in

By WILLIAM M. AVERY

the fields of promotion and merchandising. Although a good many details of the plan remain to be worked out, its unique and most promising characteristic will be a co-operative state-wide advertising campaign directed toward product selling rather than brand selling. Details of the campaign and the method of distributing its cost are to be developed by a special committee which will work closely with the association's newly elected board of directors.

Other highlights of the two-day meeting included addresses by guest speakers on such diverse topics as state trucking regulations, employer-employee relations, testing techniques, modular co-ordination, sales promotion, and proposed changes in the provisions of the state code pertaining to concrete masonry units. The group also heard a detailed report on activities of the national association, presented by E. W. Dienhart, executive secretary of the National Concrete Masonry Association, and an address on the American way of life by Henry H. Talboys, Nordberg Manufacturing Co., Milwaukee.

The officers for the current year included this group. In the back row are (left to right): Fred Radandt, first vice-president; S. A. Clark, Fred Yahr and Harry Sorrenson, directors; and A. W. Devos, secretary. Seated (left to right): Edwin Bartlett Jr., treasurer; Roy Minette, president; and A L. Brown, director.

Left to right: Walter Wolf, Besser Manufacturing Co., Chicago; S. H. Westby, Portland Cement Association, Chicago, and also one of the major speakers during the two-day program; Paul Woodworth, The Waylite Co., Chicago; E. W. Dienhart, National Concrete Masonry Association, Chicago, who reported to the meeting on his organization's recent activities and Herbert Loucks, Madison Silo Co., Madison, Wis.

Roy Minette, Berthelet Fuel & Supply Co., was elected president of the organization, succeeding Paul F. Jensen, Jensen Block Co. Other officers elected for the forthcoming year were Fred Radandt, first vice president, Fred Yahr, second vice president, Edwin Bartlett, Jr., treasurer, and A. W. Devos, secretary. Elected to three-year terms on the board of directors were L. A. Clark, Albert Brown, and Fred Yahr, while Roy Jensen was elected to serve a two-year term vacancy created by a resignation.

In opening the general sessions of the meeting, retiring President Paul Jensen briefly reviewed some of the highlights of the association's activities during the past year, and he expressed the hope that the new board of directors would carry on some of the more promising lines of investigation which have been opened. Mr. Jensen paid particular tribute to the untiring efforts of Secretary Devos, and asserted that much of the asso-

ciation's success must be attributed to his endeavors.

The activities of state, regional and national associations in the products field are far more important now, Mr. Jensen believes, than at any time in the history of the industry. He advanced as reasons for this the tremendous growth of the industry in recent years, its relatively more vulnerable position as a result of the higher rank of its product among building materials, and the certainty of keener competition in the years ahead.

Trucking Regulations The first guest speaker, Dan F. Schutz, Motor Vehicle Department, Madison, discussed state trucking regulations and their effect upon the concrete products industries. Stressing that his department is simply a collecting agency, with no authority to rule on the merits of specific cases, Mr. Schutz reviewed briefly some of the history of the state's ton-mile tax law since its inception in 1927. He particularly pointed out that concrete masonry units are not exempt from the assessment even though a specific exemption covers each of the several raw materials from which block may be manufactured.

Mr. Schutz also briefly reviewed the evolution of weight-limitation legislation in the state, emphasizing that the limitations set forth in the present law are absolute maxima. As such, he said, they include tolerances of every description, with the result that any excessive loading, regardless of how small the amount involved, constitutes a violation. It is therefore up to the truck operator, the speaker said, to determine what tolerances to allow after due consideration of such factors as the type of material to be moved, and the distance and conditions of the haul. Penalties for violations are now so high, Mr. Schutz said in conclusion, that it is foolish to run any risk of overloading.

Henry H. Talboys, Nordberg Manufacturing Co., Milwaukee, reviewed some fundamentals of economics in his paper entitled: "Our American Way—What Is There In It For Me?"

Dan F. Schutz, Motor Vehicle Dept., Madison, who addressed the meeting on the topic of state trucking regulations.

Employer-Employee Relations According to Lynn Surles, instructor of sales psychology at Marquette University, the best way to win an argument is not to have it. In developing this rather well-worn theme Mr. Surles emphasized the desirability of striving to establish some point of agreement at the outset of all discussions. There is little hope, he said, of an ultimate meeting of minds when there has been a flat disagreement in the opening stages of a discussion.

In all human relations Mr. Surles believes that it is wise to give just as much ground as possible without relinquishing one's basic objective. An ignorant man, he said, strives to convince you with *his* ideas, where a wise man seeks to persuade you with your own ideas. Much can be achieved, he continued, by appealing to the basic drives of the individual, especially by means of suggestion registered in the marginal fields of attention.

American Way In his talk entitled *The American Way—What Is There In It For Me?* Henry H. Talboys, vice president in charge of railroad engineering, Nordberg Manufacturing Co., showed that man's development and wide use of tools is largely responsible for the ease and comfort of modern living. He contrasted the predicament of early man, who had to work long hours just to survive, with their modern counterparts, who have learned to multiply the energies of each individual worker many times over through the use of tools.

Mr. Talboys pointed out that through direct ownership of shares in corporations, as well as through savings in banks and in insurance policies, every American is now a tool owner. The some 400,000 corporations which make up the present American industrial system, the speaker said, are believed to have two or three times as many stockholders as they have workers.

Using a modern automobile as an example, Mr. Talboys showed how the vast share of the price we pay for goods today represents the cost of human energy and taxes rather than the cost of natural things. The breakdown showed an allowance of 1 percent for natural things, 84 percent for human energy, 10 percent for the cost of tools, and 5 percent for tool wages (i.e. profits). Taxes, according to the speaker, add about a third to the total of all other costs, thus very materially reducing the amount which the worker receives in exchange for his services.

Mr. Talboys believes that effective monopoly can only survive within government or by the consent of the government. Sooner or later, he said, the customer inevitably lowers the boom on all private monopolies. The best way to safeguard our security, he said in conclusion, is to adhere to policies which assure the continued prosperity of the companies which make up our business and industrial system.

National Activities According to Executive Secretary E. W. Dienhart, one of the very important functions of the National Concrete Masonry Association is to draw together the many small segments of which the block industry is composed. Opening speaker at the second session of the Milwaukee meeting, Mr. Dienhart went on to say that virtually all of the work of the national association vitally affects

Lynn Surles, instructor at Marquette University, who discussed the always-provocative subject of employer-employee relations.

C. W. Yoder, Portland Cement Association, Milwaukee, talked about modular coordination and how it affects the block producer.

Professor O. Neil Olson, Civil Engineering Dept., Marquette University, discussed three changes which the association hopes to bring about in the state code requirements for concrete masonry.

every producer in the industry at the local level.

The major aim of the association's work, the speaker said, is to promote new business, and a considerable amount of specialized literature has been published to further that objective. Booklets on church, school and residental construction with concrete masonry units are now available to help develop these markets, and there are also two association plan book services in wide use.

Mr. Dienhart pointed out that through membership on the Producer's Council and insertions in the quarterly bulletins of that organization, N.C.M.A. receives thousands of inquiries concerning concrete masonry. He also referred to the Visual Aid Program under which the association provides illustrative slides and information about concrete masonry for use in architectural schools.

In closing his remarks, Mr. Dienhart extended a cordial invitation to members of the Wisconsin association to attend the annual convention and machinery exposition of N.C.M.A. at Cleveland later in the month.

Modular Co-ordination C. W. Yoder, Milwaukee field engineer for the Portland Cement Association, briefly outlined the principal advantages of modular co-ordination from the standpoint of the block manufacturer. Production of a single standard unit has, according to this speaker, the obvious advantage of requiring fewer machine changes, and thus effects a considerable reduction in "down time". There is also, Mr. Yoder pointed out, a savings of about 5 percent in materials, and less yard storage space and correspondingly smaller inventories are required.

The big consideration, Mr. Yoder said, is of course the matter of customer satisfaction. Architects and builders show considerable preference for modular masonry units because of the great savings they made possible in design time and building time.

Eventually, Mr. Yoder said, the entire industry must swing to the modular standard, and he believes that wise producers will act promptly. In this connection he referred to a survey of Wisconsin block manufacturers which appears to indicate that two out of three are already producing modular units. However, he added, producers in the city of Milwaukee seem to be lagging far behind.

Code Requirements Professor O. Neil Olson, Civil Engineering Department, Marquette University, outlined the efforts of the associations' officers and directors to bring about a liberalization of certain state code requirements which affect concrete masonry. Three changes are being sought. Where the present code requires that no individual unit run less than 900 p.s.i. on compressive test, the group is requesting that this requirement be lowered to 800 p.s.i. in accordance with the provision of A.S.T.M. C-90. Where the code now requires a header every sixth course of brick facing, the group is seeking to have the wording changed to read "every seventh course."

The third change being sought has to do with the classification of concrete brick. At present this material is at some disadvantage, particularly in exposed applications, because the code sets up specific test requirements for concrete brick alone. The association would like to have the specifications for brick restudied so that all types would be required to conform to the same standards which now apply only to concrete brick.

Although none of the changes sought by the association is in any way incompatible with good building practice, Professor Olson was careful to point out that there can be no assurance of favorable action.

Capping Block Robert A. Burmeister, representing the Milwaukee testing laboratory, told about the results of tests conducted in several laboratories to determine the effects of capping with sulphur compounds as compared with the current practice of using a 1:1 mixture of plaster of Paris and portland cement. Some technicians, according to Mr. Burmeister, had believed that capping with sulphur compounds might result in a gain of as much as 200 p.s.i. in the compressive strength of concrete masonry units. In the comparative tests with the two methods, however, the maximum gain shown by any one of the

Robert A. Burmeister, City Testing Laboratory, Milwaukee, used the blackboard in discussing the comparative effect of sulphur-compounds versus conventional caps in testing concrete masonry units.

six participating laboratories was only 9 percent, and the average increase indicated for sulphur-compound capping was only 4 percent.

The results of the tests, as disclosed by Mr. Burmeister, are summarized in the accompanying table. In closing, the speaker stated that an alternate specification on capping of block is now under consideration by A.S.T.M. Committee C-15. He made no prediction regarding the outcome of the proposed changes, but he did mention that the sulphur compounds entail certain disadvantages and that their use unquestionably increases the cost of conducting compressive tests.

Lab. No.	No. of Block Tested	Average Weight of Block	Aggregate	Age of Block, Days	Average Compressive Strength		Ratio of Sulphur Compound to Cement-Gypsum
					Cement Gypsum	Sulphur Compound	
1	16	25.05	Haydite	—	1133	1173	1.04
2	16	42.0	Limestone slag	30	1364	1421	1.04
3	20	25.1	Lt. Wt.	35	930	980	1.05
4	16	30.4	Slag sand	32	927	916	0.99
5	18	40.5	Gravel sand	—	977	1062	1.09
6	10	24.9	Cinders	28	1056	1097	1.04
			AVERAGES		1064	1108	1.04

Promotion S. H. Westby, manager, Housing & Cement Products Bureau, Portland Cement Association, discussed various aspects of promotion as it applies to concrete masonry. Defining promotion as "the art of creating a desire in someone else to buy or investigate," Mr. Westby pointed out that even the best promotional effort on earth can only create a favorable situation for the seller. Once this objective has been achieved, he said, only the producer can make the final sale.

Mr. Westby referred to his own association's extensive program of housing advertising in such magazines as *Better Homes and Gardens, American Home, House and Garden,* and *Holland's Magazine*. These, with their total circulation of some 10,000,000 copies monthly, are believed to represent an overall audience of between 30 and 40 million people. Such national advertising, Mr. Westby said, will be most effective if producers make tangible and concerted efforts of their own.

According to the speaker the local producer must be prepared to follow up inquiries in certain specific ways. If a good job of local promotion has been done, the individual will be in no doubt as to where to go for additional information, but too often, Mr. Westby implied, the producer is ill-prepared for this contingency. For example, he said, many letters sent to P. C. A. headquarters indicate that block producers are not prepared to suggest to prospects the names of architects and builders who are qualified to design and build with concrete masonry units.

It would also be helpful, Mr. Westby continued, if the producer were able to supply the names of officials in lending institutions who are favorable to issuing mortgaging on concrete masonry homes. He believes that many residential jobs are lost to the block industry because ill-informed architects, contractors or lending institutions are often prone to talk the prospective builder into choosing some other material.

Mr. Westby voiced the opinion that demonstration homes are among the best available media through which the general public can be sold on the merits of concrete masonry construction. Such projects, he said, directly affect architects and contractors as well as prospective home builders.

Noting that many producers of block have never really had to sell their output, the speaker expressed the opinion that full-scale competition may be restored before long. It would be smart, Mr. Westby said in conclusion, to learn to merchandise during an era of prosperity, instead of waiting until markets have tightened up and money is correspondingly scarce.

Co-operative Advertising *Getting More Sales at Lower Cost* was the subject of a brief talk by E. B. Saltz, an advertising representative of the Milwaukee *Journal*. Most of his presentation had to do with group cooperative advertising campaigns, a technique which appears to offer some advantages in channeling sales messages directly into local outlets.

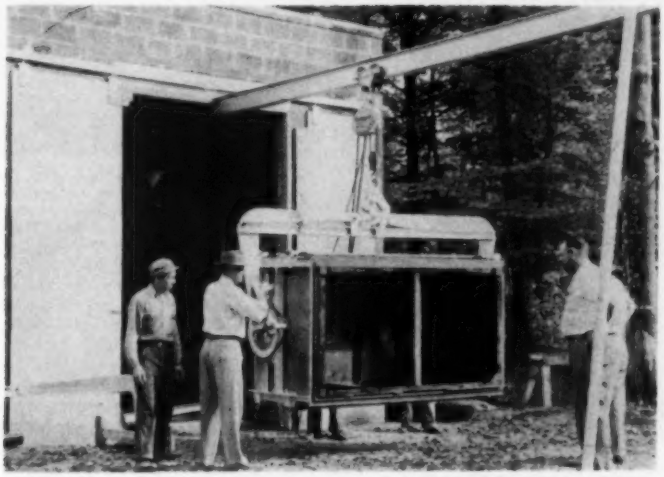
Mr. Saltz showed a number of ads which other industries have used in such campaigns, as well as several tentative layouts which might be suitable for use by a group of block manufacturers. He explained that in campaigns of this type editions of the *Journal* circulated in Milwaukee County carry a listing of local dealers, whereas copies of the newspaper which are delivered in outlying communities carry the names of other participating dealers in the state.

At the conclusion of this talk Mr. Minette, who presided at the final session as the newly elected president of the association, urged the group to take some decisive action for the purpose of developing a mass market for its output. He expressed the view that more valid selling arguments can be advanced for concrete masonry units than for any product in the entire building materials field, and he characterized the industry's apparent willingness to hide its light under a bushel as deplorable. Some of the industry's profits, Mr. Minette said, must be plowed back if it is to

(*Continued on page* 140)

One of the gaudiest chorus lines in history performed at the Hotel Plankinton in Milwaukee last month when a number of the Wisconsin block men were dragged into the act during their association's annual show. We could do a pretty fair job of identifying these glamorous creatures, but there are always the laws of libel to be considered.

Septic Tank Business Involves Lots More than Meets the Eye



● A view showing a septic tank produced by Bookout Bros., Fairfax, Va., being turned just outside the plant building. Note the overhead monorail used for all handling operations up to this point.

another ON THE SPOT report

A small but increasingly important subdivision of the concrete industries is the rather highly specialized group of concerns which concentrate largely or entirely on the production of precast concrete septic tanks. Although a fair number of organizations carry on their operations in this field as an adjunct of activities in the block, ready-mixed-concrete, or concrete pipe industries, it is far more usual to find relatively small firms concentrating all their efforts on the manufacture and installation of septic tanks. Among those who are acquainted with the number and complexity of the problems encountered in making and installing such units there seems to be general agreement on the desirability of specialization.

By WILLIAM M. AVERY

Typical, at any rate, of relatively small concerns which have chosen to specialize is the partnership of Bookout Brothers at Fairfax, Virginia. The partnership was formed, facilities were purchased, and a plant was designed and built for the sole purpose of manufacturing and installing precast concrete septic tanks. The plant is equipped for the production of three units per day, using Carpenter septic tank forms and handling equipment.

Although strikingly simple in respect to general layout and equipment, the plant is remarkably well adapted to the purpose for which it was designed, and it is about as efficient as any setup of its sort we have seen. The dominant feature of the arrangement is an overhead monorail approximately 100 ft. long which accommodates a 2-ton Budgit electric hoist. The monorail runs clear through the 40-ft. wide by 60-ft. long cinder masonry building, emerging through sliding doors at either end of the structure. Within the building the rail is supported from the roof structure, while the extensions at either end are held up by "A" frames consisting of welded steel pipe.

The 12-ft. monorail extension at the rear of the building serves the covered (but not enclosed) area in which batching and mixing operations are conducted. Aggregates, consisting for the most part of sand and gravel from sources in northern Virginia, are stockpiled adjacent to this area for convenience in wheeling the materials to the mixer. High-early-strength cement packed in bags is stored inside the plant building for protection from the weather. During winter operations calcium chloride is used in the mix, but no other admixtures are employed.

The materials are proportioned by volume, and the mixing is done with a Construction Machinery portable one-bag mixer. The mixed materials are poured from the mixer into a conventional bottom-discharge concrete bucket which is handled entirely by means of the monorail hoist. The steel forms, cleaned, oiled, and reassembled after the previous day's run, are set up just inside the rear door of the building and beneath the monorail. Thus the pouring operation consists of lifting the bucket to

● Pouring one of the steel forms with a conventional bottom-discharge concrete bucket. This bucket is handled with an electric hoist operating on the overhead monorail.

a height of about 3½ ft. above floor level, positioning it above one of the steel forms, and opening the clamshell gate.

Of the three sets of Carpenter forms operated by Bookout Brothers, two are for tanks having a nominal capacity of 750 gal., and the third is for a 1,000-gal. tank. They are poured bottom up, as is the almost universal practice in septic tank manufacture, and all the walls are reinforced with No. 9 wire mesh having 6- by 6-in. openings. Compacting of the concrete is achieved entirely by means of hand spading.

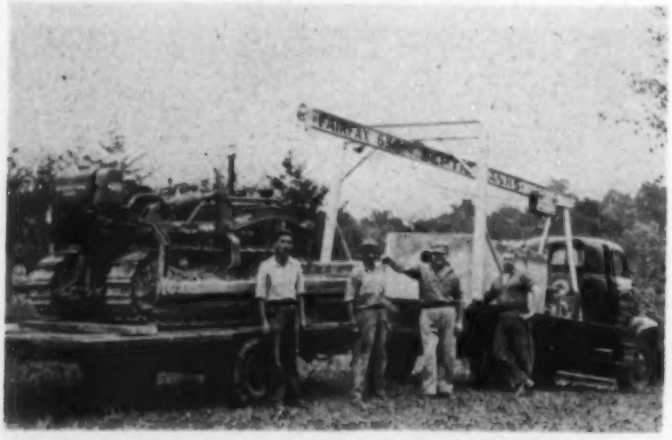
Normally the steel forms are stripped about 12 hrs. after they are poured, and the tanks are transported to the yard storage area for curing. In this stage of the operation the monorail handling system again comes into play. A 25-ft. extension of the rail in front of the building provides for moving the tanks through sliding doors which give access to the storage yard. Handling of the tanks, their rotation from the bottom-up to the top-up position, and the subsequent removal of the inside steel form, are achieved by means of a special lifting bale or gripper supplied by Carpenter (see cut).

The septic tanks manufactured by Bookout Brothers meet all the specifications of the Fairfax Health Department, as well as the requirements of the state of Virginia. Test cylinders of the company's concrete regularly show compressive strengths in excess of 5,000 p.s.i. Ordinary precautions are taken at all times to be sure that the tanks are thoroughly cured before they are placed in service, and during very hot weather freshly stripped units are covered with burlap and kept wet for several days. Perhaps indicative of the quality of concrete that goes into the company's product is a tank which stands on the front of the property just clear of the highway. It was the first tank produced in the plant when it started up four years ago, and it was covered with bold lettering and placed by the highway to serve as an advertisement. It stands almost full of water throughout a good share of the year, and shows no sign of leakage after this continuous exposure.

Although the company regularly produces three precast tanks per day, its installation facilities are based on completing one job daily. The two additional tanks which are manufactured each working day are sold to competitors. Even one installation per day requires a surprising amount of equipment, although the Fairfax firm is perhaps somewhat better outfitted than the average small concern in the septic tank field. For example, there are five trucks of various types and sizes, including one flatbed unit equipped with a monorail chain hoist for handling and transporting the tanks. Other units provide for hauling sand and gravel and cement into the plant, and for transporting men and equipment to the job. Site excavation is done by means of a Buckeye ditching machine; and an International diesel crawler tractor, equipped with a Bucyrus-Erie 'dozer, is used for backfilling. These units are hauled from job to job by means of a special tilting trailer.

The company also produces concrete distributing boxes for use on its own jobs, but it purchases drain tile from a concern in Alexandria, Va. The manufacture of the tanks is handled normally by a two-man crew, whereas installations require at least four men. Both partners in the business, George O. and Buford Bookout, have had extensive experience in other branches of the concrete industries.

● A closeup of the first tank which the company manufactured when it started up about four years ago. Located close to a main highway, this unit was painted and lettered for advertising purposes.



● An installation crew ready to go out on a job. Tanks are transported on the truck at the right. The special tilting trailer at the left is used for moving heavy equipment between various jobs.

Wisconsin Block Makers

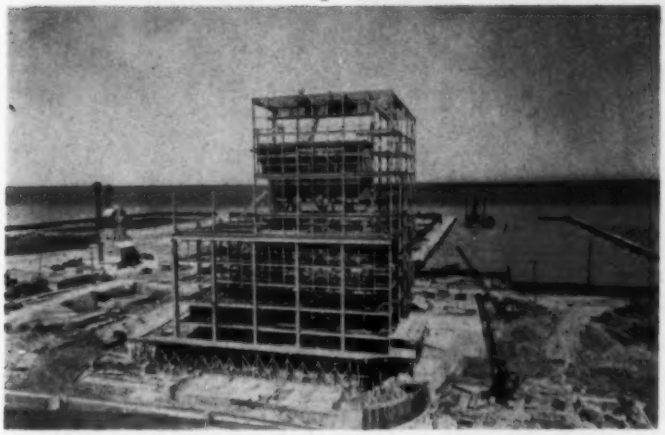
(*From page* 138.)

continue to reap the golden harvest of recent years.

In the speaker's opinion modern machinery and methods of production have made it almost too easy to increase production, with the result that the whole industry has concentrated its efforts on how to produce more, without putting forth any commensurate effort to *sell* more. In this connection he paid the tribute to the basic merchandising efforts of the Portland Cement Association and the National Concrete Masonry Association, and expressed the view that it is now time for the local producer to "grab the ball and run with it".

Mr. Minette then made the specific proposal that members of the Wisconsin Concrete Products Association finance some form of statewide cooperative advertising program, and the remainder of the meeting was spent in open discussion of this vitally important subject. A poll of the 25 companies present at the close of the meeting showed unanimous sentiment in favor of Mr. Minette's proposal. Details of the proposed group advertising campaign are to be developed by a special committee working in close cooperation with the association's board of directors, and the final plan will be submitted to the entire membership by letter ballot.

Concrete for Power Plant Project Pumped To Job-site by Commercial Ready-Mix Firm



General view of Oak Creek power plant project, located along Lake Michigan shoreline near Milwaukee, with Central Concrete & Material Company's plant on the left.

another ON THE SPOT report

IN recent years concrete for many large construction projects has been provided by temporary ready-mixed concrete plants set-up at or near the job-site; in many cases a commercial ready-mix firm operates the

By KENNETH A. GUTSCHICK

plant. A notable example of this practice is found at the Oak Creek power plant project in southeastern Wisconsin. At this site the Central Ready Mixed Concrete Company of Milwaukee is using a combination of central-mix and central proportioning to supply all the concrete for the construction. However, a distinguishing feature of the Oak Creek plant is that the central-mix concrete is delivered from the plant to the job-site by use of the Pumpcrete method.

The project involves the construction of the first section of the Oak Creek power plant of the Wisconsin Electric Power Company, located along the Lake Michigan shoreline 15 miles south of downtown Milwaukee. This first unit will have a 120,000-kw. capacity and is expected to be operating in May, 1953; construction of a second identical unit is to be started shortly and is expected to be operating in 1954. Additional power units to be installed by 1960 will bring the total capacity of the Oak Creek plant to 500,000 kw. at a total cost of $100,000,000. Klug and Smith Company, Engineering and Contracting, of Milwaukee, is the firm in charge of construction of the first two units.

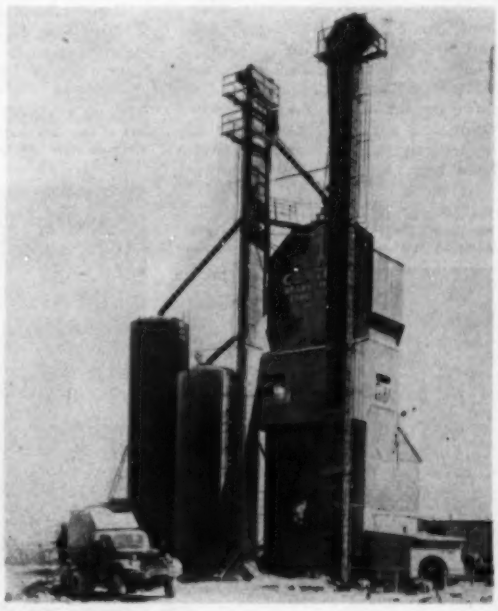
This huge power plant is designed to take care of the rapidly growing requirement for electricity in southeastern Wisconsin, particularly for the major industrial cities of Milwaukee, Racine, and Kenosha. It will supplement five other southeastern Wisconsin power plants of the Wisconsin Electric Power Company. Like two other power company plants which are located along Lake Michigan, the Oak Creek plant will take advantage of the lakeside location by making use of the lake's abundant cool water supply for cooling turbines, etc.; moreover, cheap transportation of coal is possible by means of lake freighters.

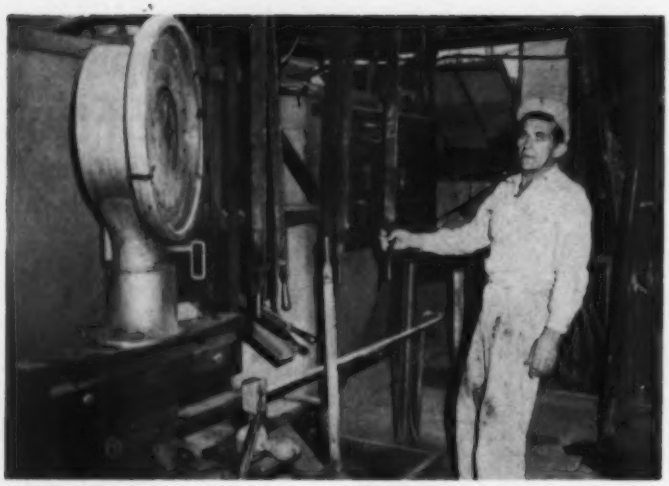
Concrete for the huge project is being produced by the Central Concrete and Material Company, a subsidiary of Central Ready-Mixed Concrete Company, Milwaukee. The ready-mix plant, a C. S. Johnson installation, produces both central-mix and transit-mix concrete; it is located a few hundred feet from the power plant site. The all-steel structure was constructed in the fall of 1951, and operation began the following March. Present production averages 300 cu. yd. per day, although occasionally it has reached 500 cu. yd.

Major plant units consist of a 200-cu. yd. six-compartment bin, two steel cement silos, bucket elevators for cement and aggregates, semi-automatic batching equipment, a 2-cu. yd. tilting mixer, and a double Pumpcrete machine. The equipment is compactly arranged so that a few men can operate the entire plant.

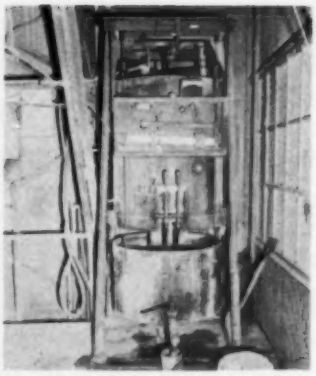
All materials are trucked in from nearby sources, including cement from Milwaukee and aggregates from a sand-and-gravel plant 20 miles northwest of the power plant. Cement is dumped from trailer trucks or cement tankers into a hopper; then through use of a 10-in. screw conveyor and an 85-ft. bucket elevator, it is transferred directly into

Close-up of the facilities at Oak Creek. Transit-mixers are loaded from chute in front; pumping machine is located in rear of plant.





Operating engineer uses manually-operated gates for loading aggregates and cement into batcher.



Semi-automatic water batcher in corner of batch room.

either of the two cement compartments of the batching bin for immediate use or to be stored in either of the two cement silos, which have capacities of 995-bbl. and 757-bbl., respectively. Cement from the silos is also fed to the bin compartments by use of the 10-in. screw conveyor and the bucket elevator. At the top of the elevator is a four-way turnhead, which directs the cement flow into the desired storage place; it is operated by wheel and cable from the batch floor. Presently only portland cement is used at the plant.

Aggregates used include torpedo sand, No. 2 gravel (¾-in. to 2-in.), and No. 1 gravel (¼-in. to ¾-in.). The materials are dumped singly into a 10-ft. by 10-ft. track hopper. Via a short section of an 18-in. belt conveyor and a 97-ft. bucket elevator, the materials are carried to the overhead bin. Another four-way turnhead, controlled by wheel and cable from the ground, distributes aggregates to the proper storage compartments.

Although a track hopper is used and a railroad spur serves the power project, no aggregates are brought in by rail at the present time. Only minor amounts of sand and gravel are stockpiled due to the fact that deliveries closely coincide with concrete production. When the need arises, stockpiled aggregates are transferred to the track hopper by a high-lift tractor belonging to the construction firm.

The overhead storage bin consists of four 40-cu. yd. compartments used for aggregates (two for sand, one for No. 1 gravel, and one for No. 2 gravel) and two smaller centrally-placed compartments used for cement. Switches located on the batch floor indicate when the cement compartments are full or empty. No indicators are used for the sand and gravel compartments. The aggregate sections are equipped with steam jets, which are used only during the winter. The cement chambers contain constantly-used air jets. Steam and air pressure are generated by a Littleford Kwik-Steam vapor generator and a stationary Gardner-Denver air compressor respectively, located on the ground floor of the concrete plant.

A Johnson Aggregate-Cement Batcher is used for the various concrete constituents. The sand and gravel batchers have a 3-cu. yd. capacity and are loaded through use of manually operated clam-shell gates. Materials are cumulatively weighed on a Yale and Towne dial scale having a 20,000-lb. capacity. Between these batchers is the cement batcher, which has a 2,400-lb. capacity; it is

(*Continued on page* 144.)

Concrete is pumped through an 8-in. pipe into a concrete bucket; this is one of the methods used at Oak Creek for placing concrete.

The 2-cu. yd. tilting mixer nearing position for discharging concrete into hopper over pumping machine.

The double pumping machine, with double outlet pipe detached, is washed thoroughly after each day's operation.

1953 JAEGER "MIX PLUS" model 3HM-D

3 CUBIC YARD MIXER
GUARANTEED TO HOLD MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
4 1/4 CUBIC YARD AGITATOR

18,000 lbs. on rear axle with a 3 yd. payload

Legal for single axle trucks

For single axle trucks, this "MIX PLUS" model adds important 1953 improvements to the fast-charging, fast-discharging, dual-mixing Jaeger design.

Perfected "Comatic" hydraulically actuated transmission, improved transmission mounting and closer coupled intermediate drive insure no deflection over the roughest ground both on and off the road. Improved A frame and drum roller supports carry maximum drum loads.

Open end loader with improved "Back-Away" gate closes the lower half of drum opening to prevent cement blow-back and water spillage when charging, and loss of concrete when climbing grades. *Backs away* instantly and completely from the drum for unimpeded discharge. Sealed end loader also available, if desired.

"Dual Mix" drum produces higher strength concrete because of correct diameter-to-length ratio, continuous spiral mixing blades and exclusive throw-back blades. Built for 8 to 10 years service compared with the 4 to 5 years life of cheaply built mixers.

See your Jaeger distributor for complete information or write us direct.

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

World's Largest Builders of Truck Mixers, Agitators • Pumps • Compressors • Concrete Mixers • Paving Machinery

Silicone Waterproofers— what they are, what they do

By HENRY L. KENNEDY
Manager
Construction Specialties Division
Dewey and Almy Chemical Company
Cambridge, Mass.

SILICONES may be described briefly, as silica and oxygen with other organic radicals attached thereto. Silicones are excellent water-repellents, and there are over 2,000 applications today, including rubber, greases, oils, resins, varnishes, insulation and electrical motors. This discussion, however, will be limited to the adaptation of silicones to waterproofing masonry or masonry products.

Silicones have also been described as "liquid stone", or perhaps still better, "liquid sand". At any rate, it may be said that they are similar in nature to concrete, brick, and other masonry materials.

There can be no question whatever as to the effectiveness of a properly developed and manufactured silicone product in improving the durability of masonry structures by making those structures water-repellent. Generally the silicone is dissolved in a solvent, the silicone content ranging from one to three percent of the total. Tests have shown, however, that for really long life and durability, much higher percentages of silicone are necessary. As the percentage of silicone increases the problem of getting the silicones into solution and keeping them in solution becomes more serious. Some repellents include additional penetrating properties of the silicone, and there are others which also control the flow of the silicone on a vertical surface so that it can be adequately sprayed instead of brushed.

Silicone preparations are applied to masonry surfaces with either a brush or spray, and they should be allowed to penetrate thoroughly. At the end of an hour the masonry will appear to be perfectly dry. However, it requires from 24 to 72 hours, depending upon the silicone and solvent, for the repellent to cure. All evidence that silicone has been applied disappears after the preparation cures, and water which is applied to the masonry surface will "shed" immediately.

The silicone material will penetrate as much as ¼ in. in depth, and it lines the pores, making them water repellent. Little information is available on water under hydrostatic pressure, but the writer believes that the silicones will not be effective if the hydrostatic pressure exceeds 2 or 3 pounds.

In durability tests of plain portland cement concrete, air-entrained portland cement concrete, and plain portland cement concrete treated with high silicone material, the silicone-treated specimen showed no distress after 50 cycles of freezing and thawing, whereas the plain portland cement concrete showed signs of disintegration in 5 cycles; and the air-entrained specimen showed some signs of disintegration at 15 cycles. Certainly there is a tremendous field here for improving concrete structures exposed to conditions of freezing and thawing.

Another application has been suggested, namely that of treating the concrete rails of rail bridges, highway bridges, etc., which are subject not only to freezing-and-thawing disintegration, but probably also to alkali-aggregate reaction. It is well known that if water is not available, the aggregate reaction cannot take place. Hence, by keeping the water out of the bridge rails and thin sections, no alkali reaction can occur.

The life of the silicone treatment is a moot question. From observations of accelerated tests by the author, it would appear that the life of the silicone treatment may be expected to be 8 to 10 years, provided that the silicone water-repellent contains the proper type of silicone and the proper percent of silicone, and that the repellent is properly fabricated.

The proper type of silicone is important. For example, there are some silicones which are not at all effective on limestone, although they may be very effective on concrete, brick, or brick mortars. In other words, silica is necessary to make some silicones function as they should. There are other silicones which function beautifully on limestone, where no silica is available, and make that limestone just as water-repellent as concrete.

Central Ready-Mix

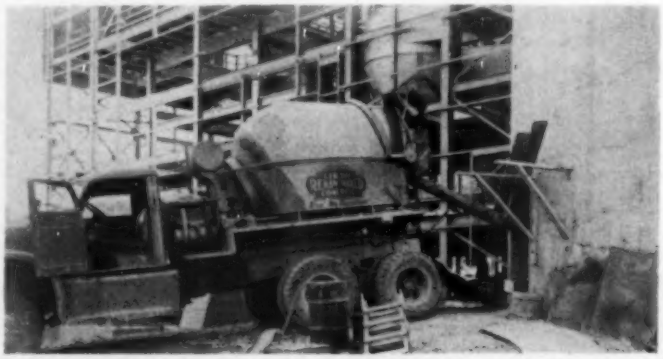
(*From page* 142.)

semi-automatic in operation. The water batcher is also semi-automatically operated; it is located about 10 ft. from the other batchers. Both cement and water are weighed on beam scales.

The materials are discharged through manually-operated gates into a Koehring Concentric Zone 2-cu. yd. mixer. This tilting-type mixer, which features loading and discharging from the same end, produces an average of 25 to 30 batches per hour. The batching and mixing operations are handled entirely by one operating engineer from the ready-mixed concrete firm.

Following mixing, concrete is discharged immediately below into a Rex Model 200 Pumpcrete machine, manufactured by Chain Belt Company. This type of machine has been widely used on construction jobs for handling concrete from mixer trucks or from job mixers, but this is believed to be one of the first installations handling concrete direct from a central-mixing plant. The Pumpcrete machine used at Oak Creek is a double pump unit, whereby concrete is pumped by alternate pistons into a steel pipe at the maximum rate of 60 cu. yd. per hour. This phase of the operation is taken care of by two men from the construc-

(*Continued on page* 145.)



A 6-cu. yd. transit mixer dumping concrete into a hoist at the base of a huge smoke stack.

Central Ready-Mix

(*From page* 144.)

tion firm, who operate, oil, and clean the Pumpcrete unit.

The 8-in. steel pipe through which the concrete is pumped consists of sections of various lengths held together by special spring locks. The system features excellent maneuverability, so that most sections of the building site can be reached easily; it consists of a single line running to the northeast corner of the boiler house, which then branches in order to skirt this building. The pipe line at its farthest point extends approximately 600 ft. from the ready-mix plant.

In actual operation the pipe is initially "lubricated" by pumping a batch of grout through it. The general-run concrete then flows readily. According to the construction superintendent, the use of rich concrete aids the operation.

Concrete is placed in a number of ways, depending primarily on the type of pour. Where conditions permit, as for example in a caisson or footing, it is poured directly. Generally for floor slabs it is dumped into a 2-cu. yd. hopper and then placed by concrete buggies. A third method involves the use of a 1-cu. yd. concrete bucket handled by a diesel crane. This latter method is

An Entirely **NEW** *Kind of Transit Mixer!*

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IMPERIAL *HYDROCRETER*

A TRANSIT MIXER ENGINEERED, FLEET TESTED AND MANUFACTURED BY A FORMER CONCRETE PRODUCER

IMPERIAL *offers you:*

A few of the outstanding features

• MAXIMUM LEGAL PAY LOAD

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- Exclusive Mixing Action
- Weight can be Shifted as Far Forward as Desired
- Shock-proof Power Transmission
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IMPERIAL CONSTRUCTION EQUIPMENT COMPANY

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3400 LAKE STREET MELROSE PARK, ILLINOIS

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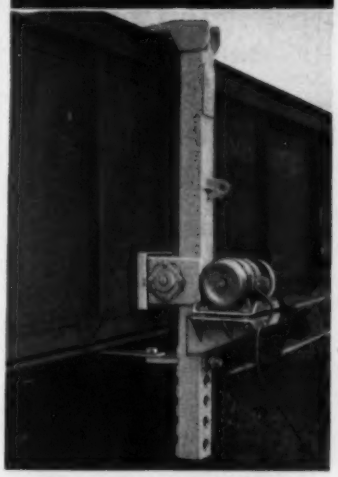

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The only low-priced equipment with which one man can quickly and safely unload coal, coke, cinders, sand, stone, aggregates and other bulk materials.

Unloads hopper cars in as little as 6 minutes, releases manpower for more important jobs.

The National Car Shaker saves up to 80% of unloading costs, and pays for itself in increased profits. Can YOU afford to be without one?

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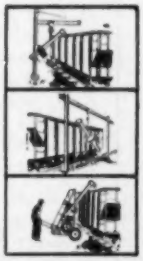
Permanent crane swings shaker into position on car.

Mono Rail
Shaker can be quickly moved from car to car.

Wheel Cart
Shaker is easily wheeled into position and mounted on cars.



WRITE TODAY for full information.

PAT. PENDING

National Conveyor & Supply Company

348 N. Harding Ave. • Chicago 24, Ill.

COMMENT
from the
BUTLER ENGINEER

Engineer Stripped to Underwear!

Sub-zero here today. Paradoxically it reminds me of a devilish hot day last summer. I was building a new home. So I order the first load of ready mix for my footings. Thought I had arranged for a couple of men to come out with the transit mix truck to handle the pour. My only job would be to sign the receipt — so I am in business clothes.

In comes the concrete but no men. Obviously we have to pour — right then! For the next two hours I'm busier than a chameleon on Joseph's coat. I guide the spout. I shovel concrete. I puddle it and place the reinforcing. And I do the surface finishing.

First, my coat comes off. Then my shirt. Then my pants. I end up clad only in the lower half of my unmentionables — and even then the sweat pours into the mix so fast it becomes a slurry.

Well, anyway you can't beat concrete batched in a Butler Plant and mixed with sweat from the Butler Engineer. But usually the sweat comes first — before the Plant is built.

1953 will reach a new and higher high in road construction. Think of the immensity of the Ohio Turnpike. 57 contractors on that one job alone. But compared with new highways, relocations and the like, all over the nation, the Turnpike is like an inch to an ell.

All in all, gentlemen, it's a lot of yardage — and a hell of a lot of Butler Plants.

Be seeing you — on those jobs.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

particularly applicable for concrete placement in excavated sections such as tunnels, where free falling concrete would necessarily segregate.

Up until now most pours have been at ground level or in excavations, which have not necessitated uphill pumping. As the concrete construction extends upward, the contractor plans to use uphill pumping to a limited extent only; for such work hoists are to be used.

To supplement the Pumpcrete operation, ready-mixed concrete is also delivered in transit-mixing trucks. At present two 6-cu. yd. truck mixers are in constant use; one is a Chain Belt and the other a T. L. Smith, each mounted on a Diamond T 6 by 6 truck chassis. The truckmixers are charged directly from the batching hopper; thus the concrete components by-pass the Koehring centralmixer. The trucks are used primarily to serve out-of-the way places or where two or more pours are being made simultaneously, especially if they require special mixes. Occasionally more trucks are used.

All concrete mixes used at the power plant are determined by the power company. Frequent tests are made of the concrete, using samples taken directly from the end of the Pumpcrete pipeline or from the transit-mixer. For most pours, a 5.6 bag mix is used, having a slump that averages approximately 3½-in. Compressive strengths of this mixture average 4,300 p.s.i., well above the 3,000 p.s.i. minimum required by the power company. Some tests showed compressive strength of 5,000 p.s.i.

The only admixture used at the present time is Antihydro, which is used in densifying the concrete and in accelerating its setting time. It is added to a 6-bag mix concrete used in the construction of a 350-ft. chimney adjacent to the boiler house.

The Oak Creek ready-mix concrete plant is operated by one of the pioneering companies of the ready-mixed concrete industry in Milwaukee, which began operating in the late 1920's. Central Ready-Mix is headed by H. C. Bartelt, president and treasurer, and B. C. Froemming, vice-president and secretary. The firm also operates a large-scale plant in Milwaukee, served by a fleet of 26 6-cu. yd. transit-mixers, including 21 Rex Chain Belt, 3 Blaw Knox, and 2 T. L. Smith units. Three company workers operate their Oak Creek plant, including the operating engineer and two ready-mix truck drivers. The company is under contract to produce 45,000 cu. yd. of concrete for completion of the first two 120,000-kw. power plant units.

The advertisement on the right hand page, addressed to architects and engineers, appears in Architectural Record, Engineering News-Record, Western Construction and Southwest Builder.

Let the industry guarantee your Truck Mixers

When a truck mixer bears the Bureau Rating Plate, you do not have to prove, to yourself or any customer, its capacity and ability to produce good concrete. You do not have to "claim compliance" to any architect or engineer; the industry guarantees it.

Engineering News Record Photo

the Greeks had no word for it

Design of box girder on columns was chosen to meet problem of height needed to cross multiple arch viaduct and to adapt easily to curvature of 200′ radius. Compared with T-beams, the box girder has less area and weight at midspan, web and flange thickness easily varied to stress requirements and high torsional strength.

Ted Kell Air Photo

What so oddly suggests a Doric colonnade is actually a viaduct for east-bound traffic leaving New York's George Washington Bridge tunnel. Its 26′ roadway and two 4′ walks are cantilevered out on both sides from a continuous hollow-box concrete girder, built in 3 sections totalling ten 66′ spans. This is supported by a single row of slender (6′ 6″) columns up to 62′ in height. The columns are steel shells, filled with concrete.

This spare and open-looking structure was poured with ready-mixed concrete, processed in truck mixers *certified* to have the correct design, capacity, mixing speed, mixing action and accurate water control to insure a homogeneous concrete of pre-determined strength.

Look for this Badge of Dependability on Truck Mixers:

You have a right to insist on this Rating Plate on any truck mixer that serves your jobs. It is available to all who comply with the quality standards which have been established by the Truck Mixer Manufacturers Bureau and approved by the National Ready Mixed Concrete Association.

These member manufacturers comply with Bureau standards:

Blaw-Knox Division
Pittsburgh, Pa.

Chain Belt Company
Milwaukee, Wis.

Concete Transport Mixer Co.
St. Louis, Mo.

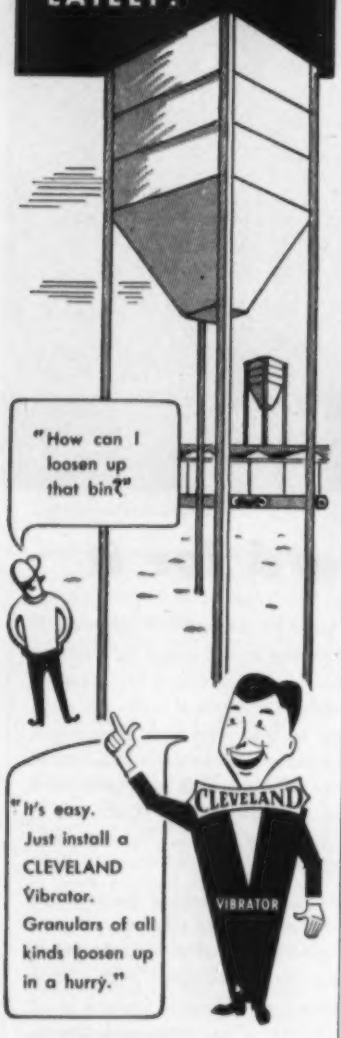
Construction Machinery Co.
Waterloo, Iowa

The Jaeger Machine Co.
Columbus, Ohio

The T. L. Smith Co.
Milwaukee, Wis.

Worthington Corporation
Plainfield, N. J.

BIN STUCK LATELY?


"How can I loosen up that bin?"
"It's easy. Just install a CLEVELAND Vibrator. Granulars of all kinds loosen up in a hurry."
CLEVELAND
VIBRATOR

Literature on request.

THE CLEVELAND VIBRATOR COMPANY

2710 Clinton Ave. • Cleveland 13, Ohio

Personal Injury Insurance

(*From page* 134.)

up the inadequacy of even a $10,000-$20,000 policy. In another instance, four persons joined in a suit asked for $140,000 damages.

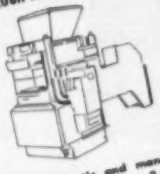
Operators of concrete block plants should not fail to investigate the possible need for a third type of insurance: employers non-ownership liability insurance. If any employees use their own cars in the business, even occasionally, this may be a wise insurance investment. Even though employees using their cars in business have insurance, this coverage may be in the lower brackets. In such event, the employer may be named in a damage action. An award may be as ruinous as though the employer's own inadequately insured car were involved.

In this connection, employers failing to carry non-ownership liability insurance should adopt a fixed policy not to ask employees to use their cars for business purposes or permit them to do so, not even in emergencies when company-owned transportation is unavailable. Even a trip to the bank by a bookkeeper in his own car may result in an accident and a damage suit.

EXCEEDS 4 CYCLES per minute!

Columbia New, Fully-Automatic 3 BLOCK

Columbia LINE MACHINES FOR THE BLOCK-MAKING INDUSTRY



- Fully automatic and manual block making machines, 2 and 3-block capacities.
- Automatic Block Splitters.
- Batch Mixers, 12, 18, 25 and 50 cubic foot sizes.

Write for information on complete Columbia line today!

...gives you fast, profitable production of quality blocks on a low cost basis!

Columbia's rugged construction, precision tooling, concealed parts, keep maintenance costs down and step-up production standards to a new, profitable high! Here are more reasons why Columbia's new 3-block machine gives outstanding performance: Standard Plain Pallet • Removable Plunger • Controlled Vibration • Hydraulically Operated • Manual Controls for Clean-up • Automatic Height Control • Twenty-Minute Mold Change. These and more make Columbia the leader in its field!

NATIONWIDE SALES, PARTS AND MAINTENANCE SERVICE with headquarters in the following states: Washington, California, Wisconsin, Mississippi, New Jersey, Florida, South Carolina, and Virginia. Fast service maintained to all parts of the country. Write today for additional information.

Columbia MACHINE WORKS

107 SOUTH GRAND • VANCOUVER, WASH.

NEW MACHINERY and SUPPLIES

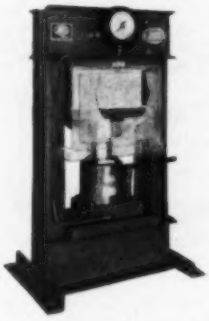
● Open End Truck Mixer

An open end truck mixer called "The Rocket" has been brought out by the Concrete Transport Mixer Company, 4985 Fyler Avenue, St. Louis, Mo.

The mixer, which conforms to specifications of the Truck Mixer Manufacturers Bureau, has a loading hopper that elimi-

nates the need for a drum seal. This hopper feeds the material into the drum in front of the blades and permits batching a full load rapidly. The discharge chute has a hydraulic control that enables the chute to be raised and lowered automatically.

Jones COMPRESSION TESTING MACHINE



for more economical mixes, and uniformly higher strength

By doing your own testing of concrete blocks and cylinders, you will immediately discover anything which may have gone wrong with the aggregate, grading, mixing, etc. This will help you maintain more uniform quality and develop more economical mixes. The Jones (formerly Yoder) testing machine is low in first cost, specially designed for concrete products plants.

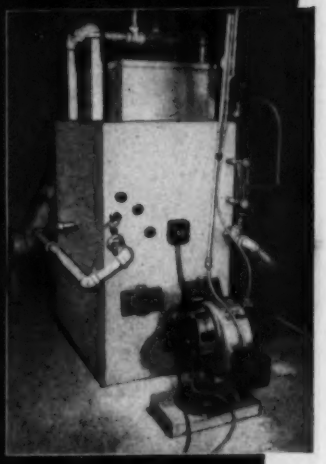
Send for list of satisfied users and literature.

***J. A. Jones* CONCRETE MACHINERY**

108 Horning Road, Pittsburgh 34, Pennsylvania

CURE in 2 HOURS OR LESS!

Revolutionary! The CONSOLIDATED DUO BOILER generates saturated and super-heated (dry) steam in rotation. The dry steam, following saturated, produces a drier, firmer unit without additional curing agents! Now you can actually stack and ship your blocks immediately after curing. CONSOLIDATED DUO BOILERS are breaking records and making cement block history right now! Think of it – you can cut your curing time down to 2 hours – in some cases, less. It will pay you to write us today!



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- EXCEPTIONAL LOW MAINTENANCE
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- CUTS FUEL COSTS UP TO 50%
- EXCEPTIONAL LONG LIFE – NO COILS TO BURN OUT
- OPERATING PRESSURE OBTAINED IN LESS THAN 10 MIN. FROM A COLD START

Consolidated **DUO BOILERS**
FOR SATURATED AND SUPERHEATED STEAM

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HI-SPEED JOB-FITTED Portable and Stationary

CONVEYORS

Move MORE materials at LESS cost!

Years ahead in design and construction.

Built better to last longer!

PROMPT DELIVERY

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BAUGHMAN 1812 Shipman Rd. Jerseyville, Illinois

Model 230

GET HIGH PROFITS from Rock Edge Split Stone

New Profitable Split Stone market awaits you! It's easy with our high speed splitting machine. Low priced but high in production. You can split or cut coursed pattern . . . random ashlar pattern . . . roman brick pattern etc. We furnish the formula — to produce beautiful color textures. Let us solve your problem — deal with a firm with experience — since 1928. Start NOW for the big new split-stone market ahead.

WRITE TODAY FOR DETAILS.

ADVANCE CAST STONE CO.

832 EAST NASH STREET • MILWAUKEE 12, WISCONSIN

COMPLETE PLANTS

from a Single Source

- "Tilt-Up" Mixers
- Ready-Mix Plants
- Expressway Semi-Portable Plants
- Dry Batch Plants
- Cement Bins
- Aggregate Bins
- Cement Storage

ENGINEERED TO WORK TOGETHER

From conveyor to elevator, from bin to mixer Burmeister equipment is designed and built by the same organization. Because each product is *"engineered to work together"* you are assured less costly "conversions," maximum production speed, accurate delivery of materials, and greater economy of operation. See your nearest Burmeister Distributor or write for details.

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Send for new 16-page illustrated Catalog of Burmeister Plants and Equipment.

COMPLETE PLANTS FROM A SINGLE SOURCE

Burmeister

L. BURMEISTER CO., 4535 W. MITCHELL ST., MILWAUKEE 14, WISCONSIN

● Improved Truck Mixer

A line of inclined axis Hi-Up truck mixers has been placed on the market by the Worthington Corporation, Harrison, N. J.

The new mixers are built in three sizes, 3 yd., 4½ yd. and 5½ yd. machines, according to the Truck Mixers Manufacturing Bureau ratings, and in two models.

The Model "LC" has a full-floating charging hopper with a built-in seal and the Model "LO" with a fast charging open end hopper. Both models can be used as agitators.

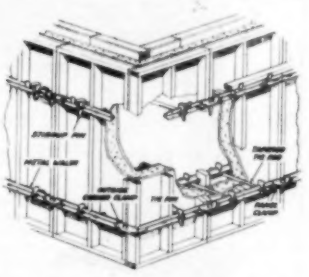
Some of the features of the new line are: unusually large diameter drum; abrasive resistant steel drums, thicker at the mixing end; welded joints; and die-formed drum blades.

The better balance of the load is said to increase capacity by giving better distribution of weight.

● Concrete Forming

A method for forming concrete walls for basements, and single story structures that has several improved features has been announced by the Rocform Corporation, 15160 W. Eight Mile Road, Detroit 35, Mich.

The method uses special aluminum



walers and forged tapered tie rods to hold the forms in place. The tie rods automatically space the wall and are reclaimed after use. Clamps lock the forms together at the walers and at the corners.

● Silicone Waterproofing

A transparent, silicone-containing waterproofing material, "Silacoat," is being distributed by Cinder Products Corporation, 75 Ellenfield Street, Providence, R. I.

This material penetrates the masonry surface and coats the pores so that water is repelled but the wall is still permitted to breathe. Efflorescence and freezing damage are also prevented

Flesheim Heads Board, McFalls New President Of Master Builders Co.

Election of S. W. Flesheim to chairmanship of the board and of E. L. McFalls as president was announced by The Master Builders Company, Cleveland. B. R. Wood was elected vice president in charge of merchandising.

Re-elected were Dr. E. W. Scripture, Jr., vice president of research and chief of operations, and F. J. Bates, secretary and treasurer.

Other new appointments were: William B. Phillips, assistant to the president; Edward J. Demson, general sales manager; George B. Southworth, assistant general sales manager; Vernon S. Andrews, industrial sales manager; J. E. Gingerich, general plant manager in charge of Cleveland, Buffalo and Toronto plants; I. V. Troutman, operations engineer.

Kentucky Firm Producing Lightweight Aggregate, Block

Kentucky Lightweight Aggregates, a subsidiary of the Ohio River Sand Company, at Kenlite, Ky., has developed a new expanded shale lightweight aggregate that is reported to be lighter and stronger than other building block materials previously used. The firm has started concrete block production using the new aggregate on an experimental basis. (Kenlite, Ky., was formerly Hubers Station.)

According to company officials, a block made from the new aggregate weighs 26 to 28 lb., compared to 44 to 46 lb. for a conventional unit.

N.C.M.A. Sales Aids Provide Low Cost Package Advertising

One of the major purposes of the N. C. M. A. is to provide members with merchandising tools to augment their own local advertising sales programs. During the last few years a number of these specially designed sales-aids have been prepared for the use of member-producers in the Association.

Available from the association is a six-page folder which describes the various bulletins, reprints, and newspaper ad mats. Another six-page folder describes the giant prints available at cost to members for use in trade and home shows, exhibits, etc. Any of these prints may be ordered in 8- by 10-in. size.

Reichard-Coulston, 15 E. 26 Street, New York 10, N. Y., has announced the following appointments: J. B. Coulston becomes secretary and general manager; G. H. Casey was named manager midwestern district manager at Chicago; Robert Grant is New England district manager at Boston; and F. E. Smith becomes southern district manager at New York.

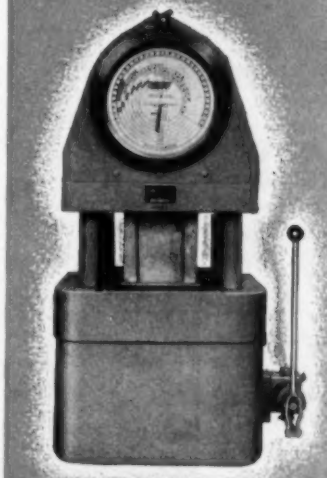
The Clark Equipment Company, Battle Creek, Mich., has announced appointment of the Mississippi Supply Company, Chicago, Ill., as dealer in the railway field.

Be SURE With

the FORNEY Compression TESTER

SELLS PRODUCTS INCREASES PROFITS

Through Daily Quality Control of Products



Only Forney Gives You a Complete Laboratory Testing Machine for Cylinders, Blocks, Lintels, Beams And Bricks.

Tests With a Forney Compression Tester in Your own Plant Are in Accord With Mechanical Requirements of ASTM.

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CONTROL YOUR MANUFACTURING OPERATION

(Batching, Mixing and Curing)

SELL THE USER, ARCHITECT AND CONTRACTOR

CONCRETE

For ATTRACTIVENESS, NOISE ABSORPTION, FIRE SAFETY

Write For New Brochure Describing Tester

FORNEY'S INCORPORATED

Manufacturers of Special Machinery Since 1910

203 ELM ST. NEW CASTLE, PENNSYLVANIA

This "Flying Saucer" carries Truth!

Crusade for Freedom brings hope to enslaved millions

The word "SVOBODA" on the balloon in this picture is the Czech word for "Freedom."

Supplementing Radio Free Europe in 1951, thousands of these "Flying Saucer" balloons were released by Crusade for Freedom along the borders of the Iron Curtain countries. They contained messages of hope and courage from millions of Americans who joined in the 1951 Crusade for Freedom.

LOOK WHAT YOU DID

In the last two years the contributions of Americans to the Crusade for Freedom have amounted to $3,500,000. This money helped make possible Radio Free Europe's thirteen transmitters in Germany and Portugal. It also helped establish Radio Free Asia, which broadcasts to China in four different languages. These facilities are used daily to spike Communist lies and satisfy the hunger of millions for truth.

MORE HELP NEEDED!

In 1952, at least $4,000,000 and the signatures of millions more Americans on leaflets ("Freedom-Grams") are needed—not only to carry on this operation but also to expand it on an even bigger scale.

Support this crusade of truth now.

Help Truth Fight Communism!
Join the Crusade for Freedom

3 YARD MIXER

3½ YARD MIXER

The recently introduced side engine mount (right) is another "FIRST" for Challenge and is currently in production on 5, 6, & 6½ yard sizes. By placing the mixer engine to the rear at the side of the drum, the center of gravity is moved forward approximately 18 inches, moving thousands of pounds additional weight (all extra net payload) on a heavy duty front axle.

4 YARD MIXER

5 YARD MIXER

6 YARD MIXER

6½ YARD MIXER

• Team up with Challenge

for greater PROFIT in '53...

With the only complete line of truck mixers on the market, Challenge offers the Right Size Mixer to team up with the standard 2 or 3 axle truck of your choice. A careful analysis of Challenge sizes and their application will enable you to utilize the physical and legal capacity of mixer and truck to assure full rated capacity payloads. In addition, the use of standard industrial equipment in their manufacture keeps operating and maintenance costs to absolute minimum. You can be sure of greater profit when you team up with Challenge in '53.

COOK BROS.
EQUIPMENT COMPANY
1815 No. Broadway, CApitol 2-9111
Los Angeles 31, California

COOK BROS. TRUCK EQUIPMENT

Exclusive Distributors for CHALLENGE
. . . . Standard of The Industry.

COOK BROS. EQUIPMENT CO. CM

Please send detailed information on Challenge Mixer sizes, together with name and address of my nearest Challenge Dealer.

NAME_____

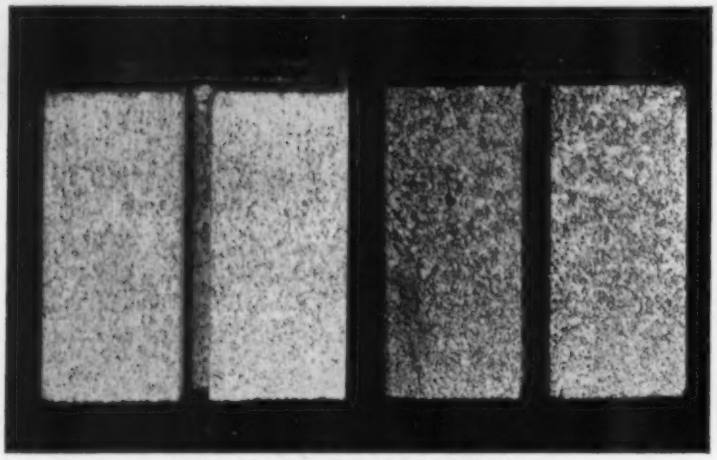
ADDRESS_____

CITY_____ STATE_____

Better Concrete Blocks at lower operating costs by adding economical D-40

Let us show you how we have helped other concrete products manufacturers make superior blocks and at the same time reduce operating costs.

You will experience these advantages by adding a small amount of Detergent D-40 to the dry cement or wet mix.



Block A (left) made with D-40. Block B (right) made the old way. Note difference in texture, color, appearance. Sharp edges and corners.

Better appearance—smoother, whiter, finer surfaces

Greater strength—less water produces stronger concrete

Closer bonding—saves on painting and waterproofing

Reduces abrasive wear on mixing and molding equipment

Saves time—mixes pour into molds faster—"break"cleaner

Easy to use—just add to dry cement or "mix"

Economical—D-40 costs you a fraction of a cent per block

Ready-mixed concrete producers have found D-40 improves their product.

D-40 is a granular detergent widely used in manufacturing many different molded concrete products. It is supplied in 85# bags by Oronite, the world's largest producer of synthetic detergent raw materials. Because of its qualities only one to two oz. of D-40 per bag of cement is needed to obtain outstanding results. With D-40 you are assured of a stable, economic source of supply.

For complete information, samples and technical help write or call the nearest Oronite office.

ORONITE CHEMICAL COMPANY

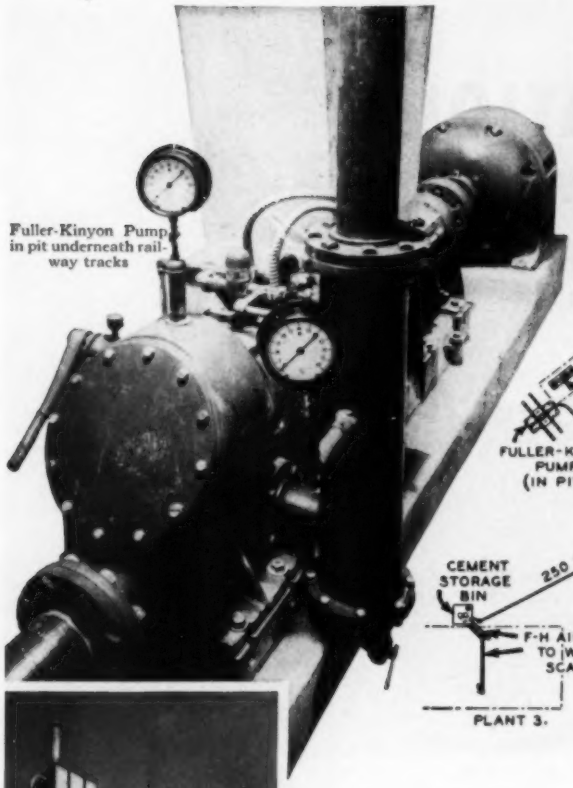
38 SANSOME STREET, SAN FRANCISCO 4, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS
MERCANTILE SECURITIES BUILDING, DALLAS 1, TEXAS

ORONITE CHEMICAL COMPANY
THE NAME TO WATCH IN CHEMICALS

2029

PAT BLOX gets fast • clean UNLOADING and DISTRIBUTION with the

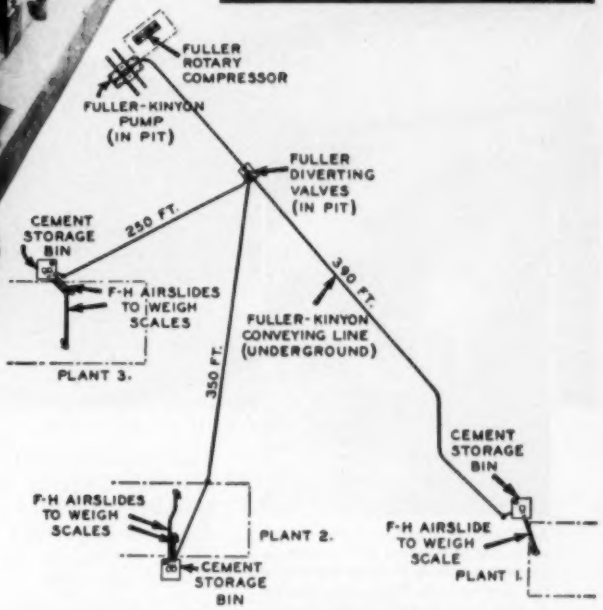
FULLER-KINYON CONVEYING SYSTEM



Fuller-Kinyon Pump in pit underneath railway tracks

Fuller-Kinyon transport line entering top of bin. One F-H Airslide from bin bottom to weigh-scale. (Plant 1 in plan)

Fuller-Kinyon transport line entering top of bin. Dual F-H Airslides from bin bottom to weigh-scales. (Plants 2 and 3 in plan)



This fast-growing, concrete-block plant, really three plants in one, solved its unloading and distributing problem with a Fuller-Kinyon Conveying System.

To avoid interference with trucking and other plant activities, incoming cement is pumped underground from hopper cars to three storage bins by a Fuller-Kinyon Pump with a 200-bbl. an hour capacity. Diverting valves in the conveying line regulate distribution from pump to bins. The conveying system operates on air furnished by a Fuller Rotary Compressor.

From the bins, F-H Airslides — equipped with airfeeders and air-operated, cut-off gates — convey the cement to weigh-scales over the mixers.

If unloading and distributing of dry, pulverized materials present a problem in your plant, a Fuller engineering study may quickly determine a more convenient, faster, more economical system. No obligation, of course.

Fuller

FULLER COMPANY, Catasauqua, Pa.
120 So. LaSalle St.—Chicago 3
420 Chancery Bldg.—San Francisco 4

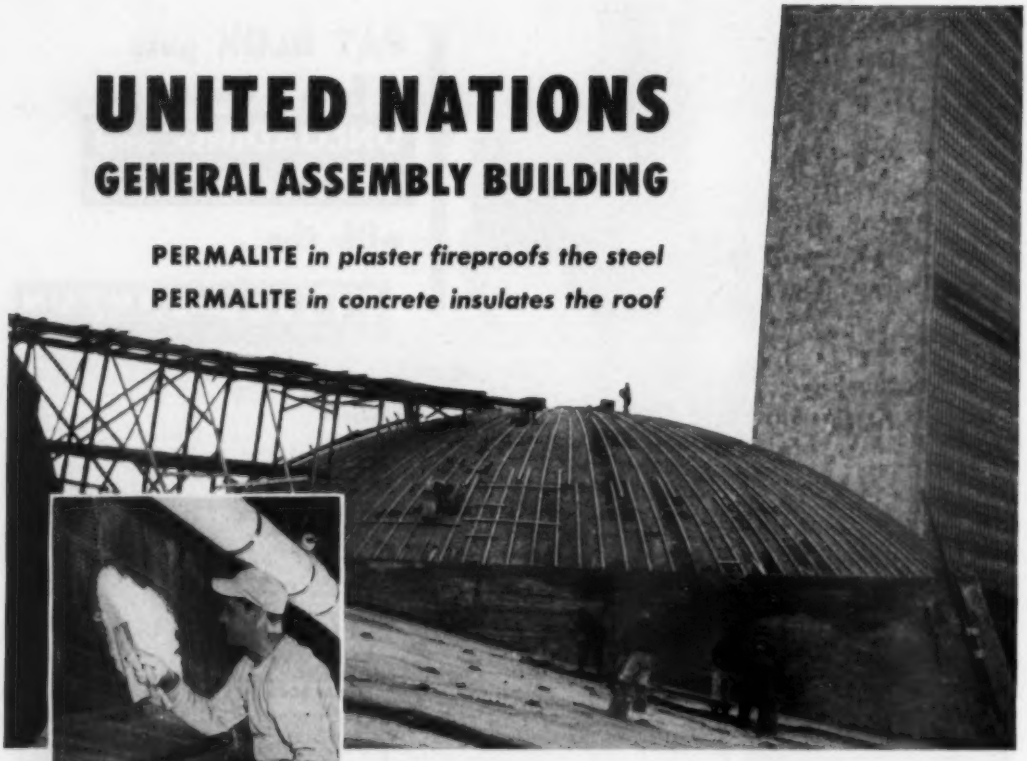
DRY MATERIAL CONVEYING SYSTEMS AND COOLERS—
COMPRESSORS AND VACUUM PUMPS—
FEEDERS AND ASSOCIATED EQUIPMENT

P-139
1625

UNITED NATIONS
GENERAL ASSEMBLY BUILDING

PERMALITE *in plaster fireproofs the steel*

PERMALITE *in concrete insulates the roof*



54,000 sq. ft. of plaster with Permalite were used to fireproof steel not only in General Assembly Building but also in two meeting halls. Plaster was applied 1" thick on expanded metal lath over steel beams, girders, trusses.

500 cubic yards of concrete with Permalite were poured as roof fill—reducing dead load and heat transmission. The contractor "...found Permalite to be a workable material, easy to mix, place and screed without special equipment."

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PLASTERING CONTRACTOR
T. A. O'Rourke Company
ROOF FILL CONTRACTOR
Brennan & Sloan, Inc. and
Knickerbocker Construction Corp.
— a joint venture

The planners of the United Nations General Assembly Building have used Permalite for two important applications. Permalite, the leading perlite aggregate, was specified in plaster for fireproofing the structural steel; and in concrete for insulating roof fill. As a result, the maximum 4-hour fire rating for supporting steel has been achieved; and the roof has been insulated by lightweight concrete. For insulation, fire-resistance, lightweight and better workability, plan to use Permalite on your future jobs. Permalite meets rigid specifications of Underwriters' Laboratories fire test. Frequent production control tests assure uniformity and consistently high quality in these aggregates. Complete data in our bulletins PA-26, PA-7 and PA-9.

Write Great Lakes Carbon Corporation, 612 S. Flower Street, Los Angeles 17, Dept. G-452 or local Permalite producer. See our insert in Sweets File for Architects.

Dependable GREAT LAKES **Permalite®**

THE LEADING PERLITE AGGREGATE

PROCESSED FROM SOCORRO PERLITE ONLY BY THESE EXCLUSIVE PERMALITE LICENSEES OF GREAT LAKES CARBON CORPORATION

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•
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William J. McCormack Sand Co., Inc., New York, New York
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New Jersey Perlite Corp., Newark, New Jersey

MacArthur Company, St. Paul 4, Minn.
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McClure & Erickson Corp., Los Angeles, California

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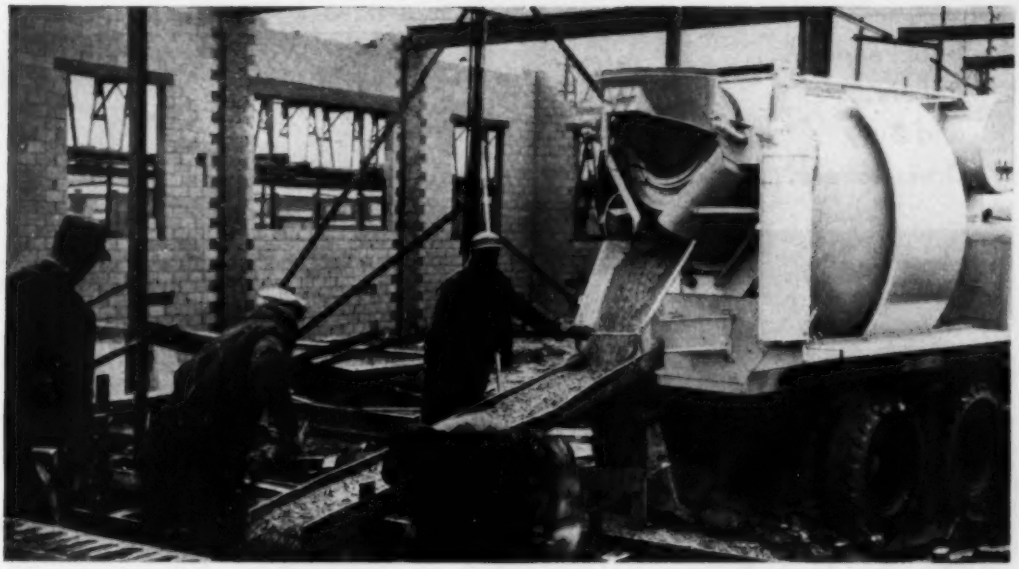
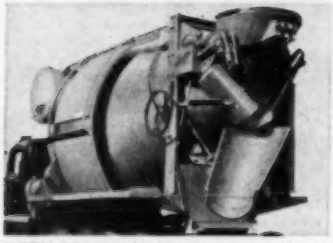


Get greater payload capacity with Worthington Hi-Ups



MODEL LC—standard equipment: top hatch loading door, closed end charging door, running boards, side shields. Approximate weight—7100 lbs.

MODEL LO—standard equipment: open end drum with fixed hopper, inspection plate, no side shields or running boards. Approximate weight—6300 lbs.

In Worthington Truck Mixers, engineered weight distribution brings the center of gravity well forward of the rear axle—enabling you to carry the maximum legal payload. Scale weight is held to a minimum, with no sacrifice in strength or operating efficiency.

Rigid factory and field tests assure each Blue Brute user of trouble-free operation and low cost maintenance. All parts requiring attention are readily accessible for easy servicing.

The modern Worthington mixer is available in capacities of 3, 4½ and 5½ cubic yards, with respective agitator ratings of 4¼, 6⅛ and 7⅜ cubic yards.

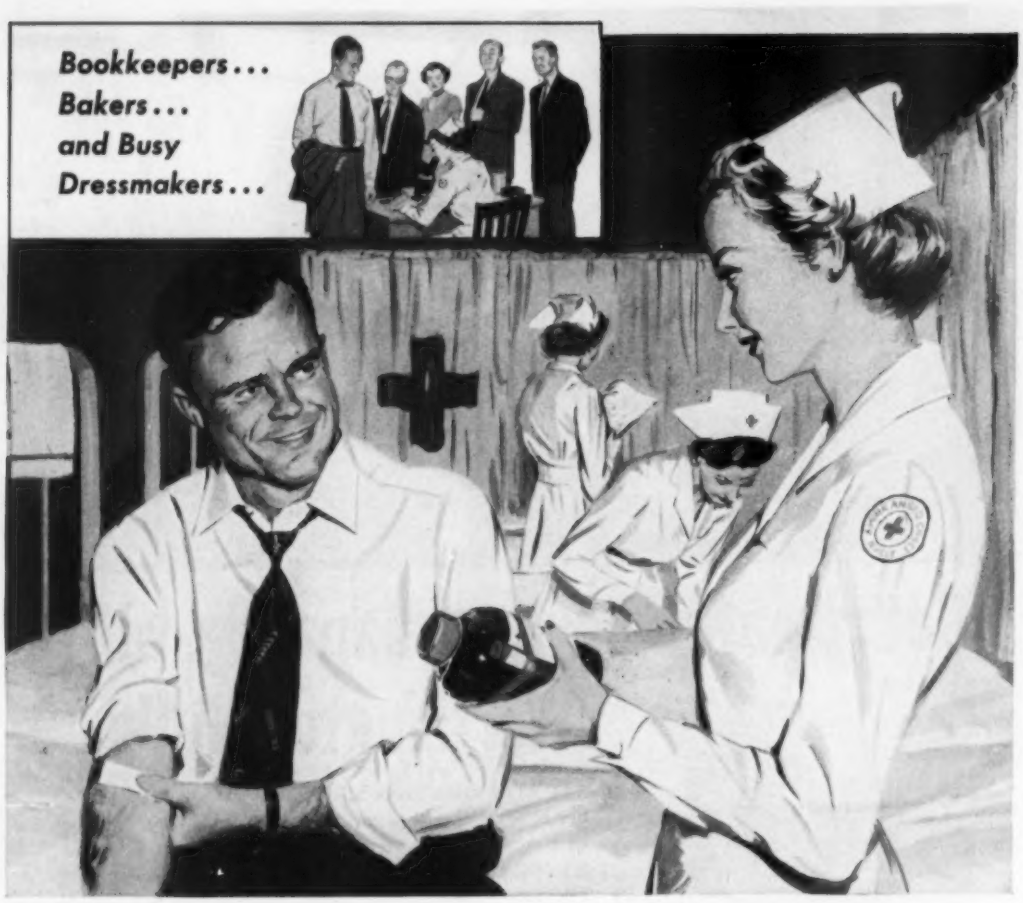
Learn more about the Blue Brute Hi-Up—the truck mixer that is the ideal combination of light weight, strength and durability. Get in touch with your nearest Worthington Blue Brute distributor or write Worthington Corporation, Construction Equipment Division, Plainfield, N. J.

K-3-1

If It's A Construction Job, It's A *Blue Brute* Job

WORTHINGTON

Construction Equipment



Americans Are Rolling Up Their Sleeves!

YES, ALL KINDS OF PEOPLE ARE GIVING BLOOD SO THAT OUR WOUNDED MAY LIVE!

● Today, the blood of a Boston bookkeeper may be flowing through the veins of a wounded kid from a Kansas farm . . . the blood of a pretty Southern housewife may have saved the life of a grizzled leatherneck. For, blood is blood, a God-given miracle for which there is no substitute . . . and when a man's life hangs in the balance and blood is needed, there is nothing else to take its place!

Right now the need for blood is urgent. In hospitals—at home and overseas—many men require four and six transfusions during delicate operations. And the blood *must be there*—when it's needed. So give the most precious gift of all—*your* blood!

Be assured that giving blood is neither difficult nor distressing. And what a thrill there is in knowing that you've performed a really unselfish act! So call your local American Red Cross today and make an appointment. And tell your friends and neighbors about your experience. Let them share the wonderful feeling Americans get when they roll up their sleeves—and give blood.

But—

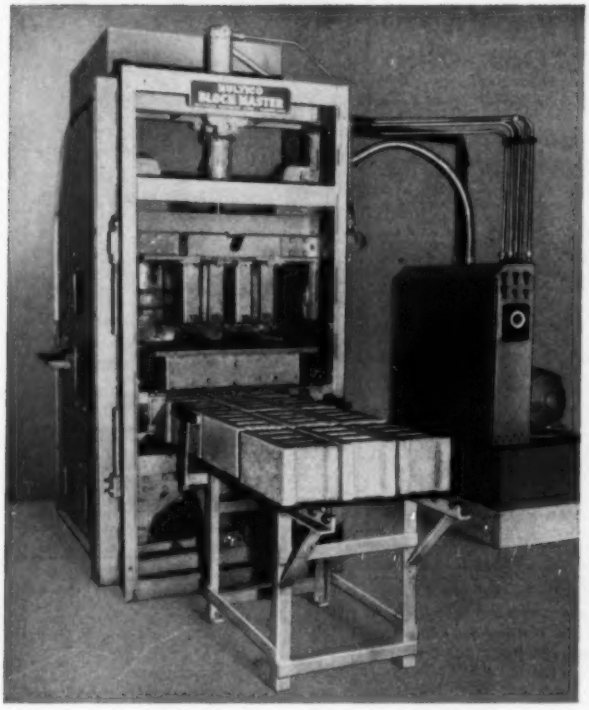
WHAT HAPPENED TO THAT PINT OF BLOOD YOU WERE GOING TO GIVE?

Call Your American Red Cross Today!

PRODUCTION TESTED!

Blockmaster #3

High Production · Fully Automatic · Hydraulically Powered



The Multico Blockmaster No. 3 is now ready for *your* plant—after three years of production testing in many plants. Producing three blocks per cycle, it is a completely automatic machine, requiring labor only to off-bear block. Hydraulic power from a separate unit provides smooth, quiet operation and serves additional machines in future expansion. The compression action combines pressure, vibration, and tamping, for perfect blocks. Plain pallets are used in making any size or style of block with any aggregate.

Both the Blockmaster No. 3 and the newly modified No. 2 have 50% less moving parts than any other machine in their capacity classes. This means an absolute minimum of maintenance.

Make this proven Blockmaster No. 3 your next machine; call or write for further information.

Multiplex Machinery Company has been making concrete production machinery for over 40 years. Our engineers will help you plan your plant expansion. We can show you how Multiplex automatic block machines, mixers, skip hoists, and compartment aggregate bins can make your operations more profitable.

MULTIPLEX MACHINERY COMPANY

DIVISION OF MULTIPACK, INC. • ELMORE, OHIO

Concrete Manufacturer Classified Section

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MOUNTED ON LATE MODEL CHASSIS

Overhauled and painted — in good condition

McNamee Ready Mixed Concrete

Priced to Sell — Will Finance

P. O. BOX 175 **XENIA, OHIO**

EQUIPMENT FOR SALE!

STEARNS #9 Jolcrete	$2500
STEARNS #7 Jolcrete	2000
STEARNS 18 cu. ft. Concrete Mixer	750
STEARNS 28 cu. ft. Concrete Mixer	1500
STEARNS 18 cu. ft. Skip Loader	750
STEARNS 42 cu. ft. Skip Loader	1500

Largest Stocks of Pallets in the world. Send tracing or sample for quotation.

Write . . . Wire . . . Phone

GENERAL ENGINES CO.

107 HUNTER ST., GLOUCESTER CITY, N. J.

FOR SALE

Complete cement block making plant in Detroit, Michigan. Includes Stearns No. 9 Jolcrete in very good condition, with 4"-8"-12" attachments. 8" attachments new. Many pressed steel pallets, all sizes, mortar grooved. Modern steel racks. 28 ft. mixer with batcher, skip loader, gravel bins. Clark platform lift truck.

Priced for quick sale. Owner leased property and must sell. Will sell as unit or separately.

Subject to prior sale.

Box No. CL-41, c/o Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Illinois

FOR SALE

Modern cement & cinder block plant, center of Long Island building boom, excellent profits with further expansion indicated, terrific opportunity. May be seen in operation.

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c/o Concrete Manufacturer
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PALLET RINGS
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

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Write for color cards, prices and samples

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MILWAUKEE 2, WISCONSIN
Established 1885

ATTENTION LITH-I-BLOCK OWNERS!

FOR SALE

40 steel racks.
1200 plain 18" x 18" pallets.
Priced for quick sale.

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Dunbrick machine.
3000 pallets.
13 racks.
12 cu. ft. Stearns mixer, skip hoist.
As a unit $3500.00
1000 pressed steel pallets $200.00

Dale B. Cornick Concrete Products
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LORAIN THEW SHOVEL BOOM

Chain Guide and Large Hoist Sheaves. Chain Crowd. 18 Foot Shovel Boom. ¾ Yard Type Dipper. Serial Number D-22597-4. M.D.-27873.
Complete With All The Attachments.

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LOWER COST
PACKER-HEAD WINGS
Proved to last as long or longer — yet cost considerably less. Write for prices.
TEXAS FOUNDRIES
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MAQUINARIA y MOLDES
para fabricación de bloques y tubos de concreto

PIDA CATALOGO Y PRESUPUESTOS
A: New & used.

GEORGE W. HOFFMANN CO.
P. O. Box 452, Sioux City, Iowa, U.S.A.

HELP WANTED

Territory representatives. Excellent opportunity for right organization or man to sell full line of concrete products machinery. Must be willing to travel. Good commissions. Leads furnished.

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Lith-I-Block (2 block) machine with off-bearer, 4", 6", 8", 10", 12", brick, sill, lintel, bull nose and all fractionals plus spare parts. 60 racks of 60 block capacity. 1750 steel pallets. 28' Stearns Mixer with new liners. Lift trucks. Make an offer. Contact: PHIL GRAM, 4119 W. 74th Terrace, Prairie Village 15, Kansas.

STOP that WATER

With FORMULA NO. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.
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3—Jackson and Church Autoclaves, 50' x 6', Bolted Head

1—Jackson and Church Autoclave, 55' x 6½', quick acting head

1—200 HP., 150 lb. Superior Steam Generator Package Unit

2—Jackson and Church 12-pocket Brick Machines

1—3' x 8' Hardinge Rod Mill

1—4' x 10' Jackson and Church Rod Mill

1—125 HP. Stoker Fired Fire Tube Boiler

1—Spencer Vacuum Producer for Air Conveying

1—110 gt. Conveyor for 17" or 24", can be troughed

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Motors, 1-50 HP., some gear heads
Speed Reducers, Horizontal and Vertical, ½ HP.-25 HP.

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BRICK MORTAR
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manufactured by
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43 steel drying racks holding 72 concrete block each. Made for hydraulic off bearer—spade type—and were made especially for 3 block Stearns Joltcrete Block Machine.

LAKE VIEW CONCRETE TILE COMPANY
LAKE VIEW, IOWA

FOR SALE OR LEASE

Modern block plant, fully equipped, ready to go. Write:

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FOR SALE

NEW—Rex. Pumpcrete Machine, Model CZ-525, with Continental Gasoline Engine, on four pneumatic tires, equipped for Model 40 Pipeline with 630 Lin. Ft. of pipe and miscellaneous fittings and tools.

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2—14 cu. ft. Blystone Mixers—Motor Driven. $500.00 each F.O.B. Altoona, Pa.

EAST SIDE CONCRETE SUPPLY CO.
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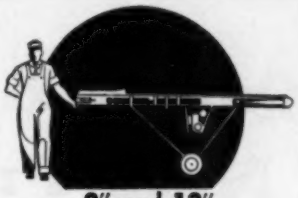

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40-72 Block Racks. Can be seen in operation now. Dunn Brick Machine with pallets, Racks and skip hoist. Fairbanks-Morse Coal Stocker for 25 H. P. Boiler. Barrett-Cravens—Electrically operated Power Ox lift truck with extra Battery and charger.

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Hercules gasoline motors. Hi-Dump. New Paint. A-1 Condition.
TRUCKS: — International 6 x 6 Army type.
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FOR SALE

1 Dunbrick machine with motor
2,000 pallets and 6 brick racks
All in good condition
Priced to sell—$2,200.00

CORALVILLE PRODUCTS INC.
R.R. No. 2 Iowa City, Iowa

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1 Dunbrik Brick Machine and motor approximately 9000 pallets

1 Dunn 16 cu. ft. mixer with hoist and motor

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30 Brick racks
Miscellaneous equipment to go with above

1 FMC 100 Block machine
all the above in good working condition

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Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

$95.00 each

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Haiss "77C" **Used** Crawler Bucket Loader
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Smith 3 yd. **Used** Hi-Discharge Mixer w/White Truck
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Rex 3 yd. **Used** Hi-Discharge Mixer w/Ford Truck w/Thornton Drive
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CRANES & SHOVELS
Lorain "TL-25-K" **Used** ⅝ yd. Diesel Dragline or Hoe
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MISCELLANEOUS
IHC "T-9" **Used** Gas Tractor w/Hetl Cable Dozer
Homade Semi-Trailer (15-Ton), w/1949 Dodge Tractor
Trailer Tilt-Top, Tag-A-Long, 9.00 x 20 tires (8-ton)

EIGHMY EQUIPMENT COMPANY
ROCKFORD, ILLINOIS

WANTED TO BUY!

PRESSED STEEL

PALLETS

WE BUY COMPLETE BLOCK PLANTS

Write . . . Wire . . . Phone . . .
GENERAL ENGINES CO.
307 HUNTER ST., GLOUCESTER CITY, N. J.

WANTED

No. 9 Stearns Jolt Crete Block Machine complete with power Carrier, air off bearer and turn tables.

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BALTIMORE 16, MARYLAND

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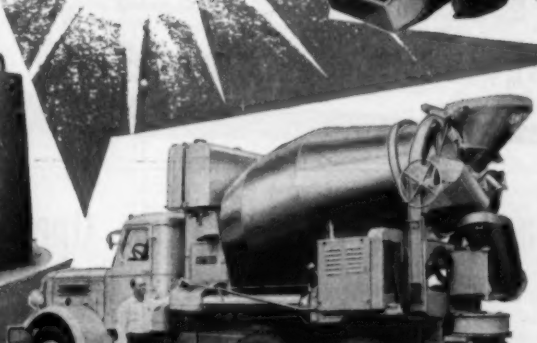

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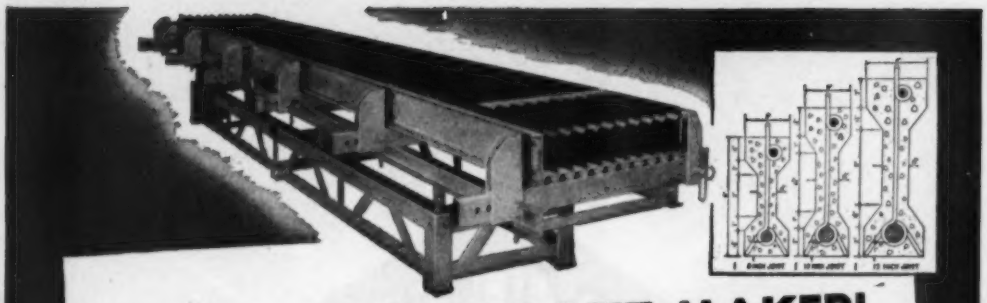

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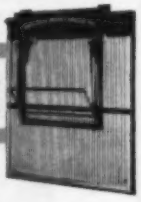

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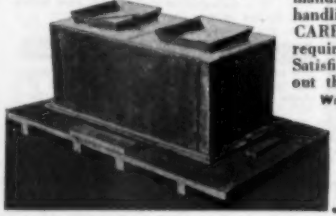

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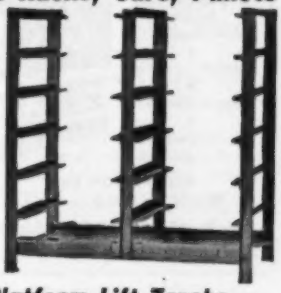

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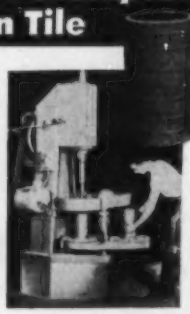

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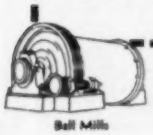

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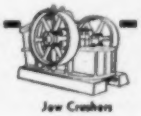

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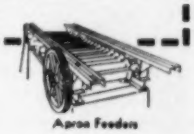

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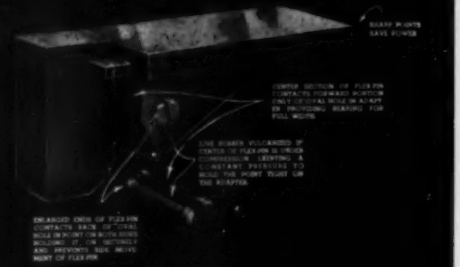

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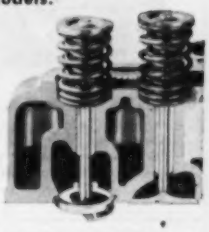

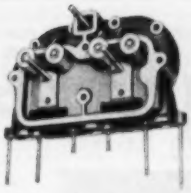

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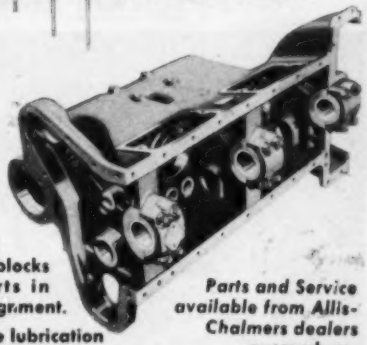

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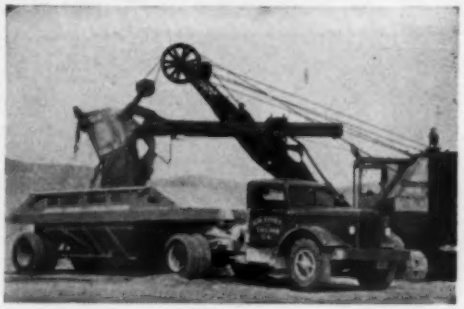

LANDIS 12 yard on-or-off the road bottom Air-dump trailer, illustrated above: 20' 3" overall length, 7' height, 8' overall width. Door openings—2 doors 18½" x 8' 4", gravity opened, air closed from truck cab. Specially designed for fine materials. Sides and bottom—3/6" high tensile steel.

Model Illustrated: Side-dump, down-folding door. 8 cu. yd. capacity. Twin hydraulic hoists raise bed to dumping angle of 55 degrees. Bottom is ¼" plate, with liner of 2" of oak and ⅜" steel wear plate. This unit is designed for rough working conditions, such as mine or quarry duty.

ON - OR - OFF THE ROAD

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LANDIS STEEL CO.

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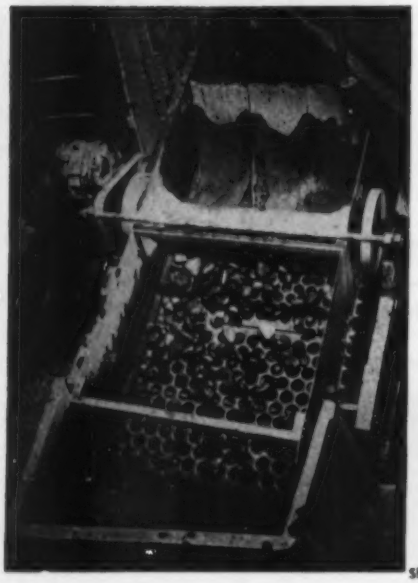
Sizing is always accurate...



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Material is always accurately sized when Hendrick Perforated Plate is used on vibrating and shaking screens, because the mesh remains uniform throughout the long service life of the screens.

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Manufacturing Company

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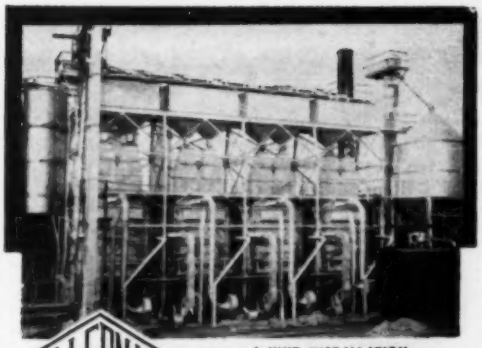

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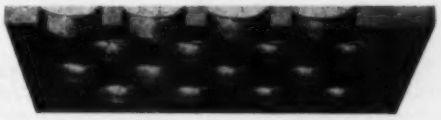

Under Side of Plate — Note absence of burr

Top Side of Plate — Note conical holes

"CROSS" Perforated Steel Plates and Sections insure peak sizing performance. Tougher steel . . . lighter weight . . . higher open area . . . greater accuracy . . . reduced installation and operating costs.

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CAN BE USED INSIDE OR OUTSIDE PLANT

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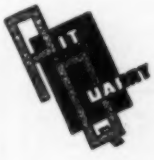

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Must be in first class condition

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Consisting of:

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1 Separately Mounted Synchronous Motor Exciter.

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1 Station of Woodford Haulage System Control Equipment Consisting of: 9 D.C. 300 Ampere Contactors, 3 ITE Breakers, 9 S.P. D.T. Controller Switches, 3 Single Lever Controllers, Grid Resistor Bank, and 3 S.P. S.T. Knife Switches.

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10 Quarry Cars, Same as Above Except with Steel Box and 2-50 H.P. D.C. Motors.

2 Miles (Approximately) of Standard Gauge Track Consisting of:
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27FD rear dump Euclids.

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9 x 40 Two Stage Jaw Crusher

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9 x 36 JAW CRUSHER

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25 cycle 3 phase motors, 440 volt, ¾ HP to 100 HP. Let us quote. Also 2—37½ KVA 13800/220/110 60 cycle 1 phase Pittsburgh transformers, electrically OK. $125.00 ea. FOB Duluth, Minn. Write:

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400 Bbl. Cement Bin, Blaw-Knox, 1952
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Hanson truck crane	Cedar Rapids 15x36 jaw crusher	20"x40' port. conveyor
Butler Carscoop	Byers 62 comb. shovel & dragline	Pioneer 4x8 screen

These machines reconditioned in our newly-built daylight plant. Come see them!

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1	24"	25'	$1322	$ 657
1	24"	45'	2062	1085
1	24"	100'	4097	2037
1	30"	25'	1421	806
1	30"	65'	3101	1583
1	30"	125'	5621	2748
1	36"	40'	2182	1222
1	36"	75'	3757	2033
1	36"	105'	5107	2616
1	48"	40'	2609	1426

Note: All belting is 4 ply, 28 oz. duck belt with ¼" top rubber cover and 1/32" bottom cover.

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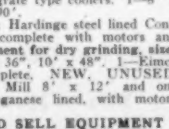

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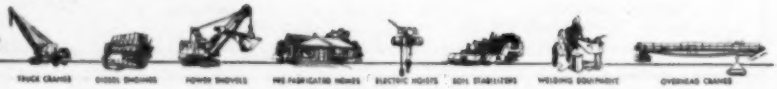

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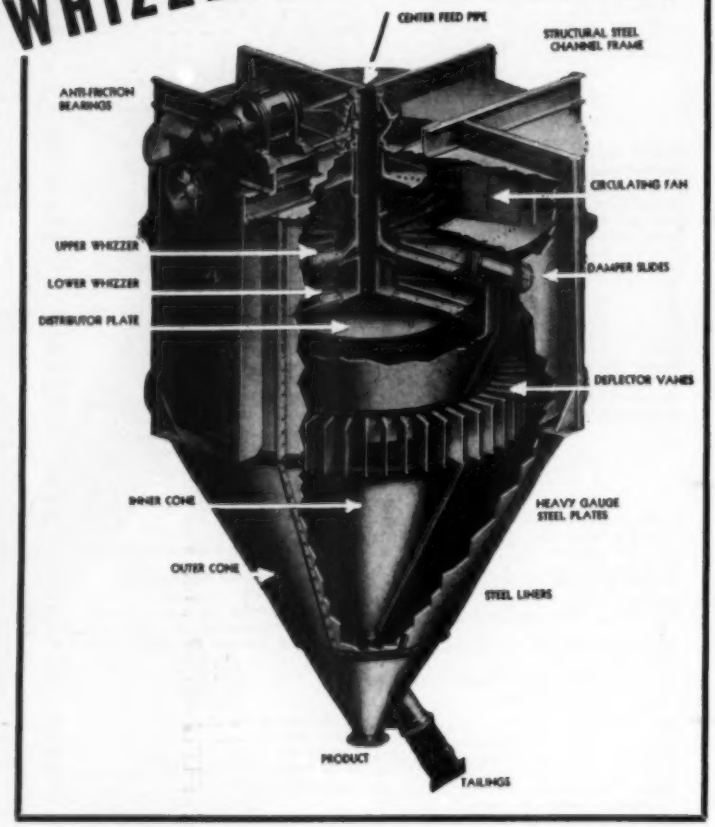

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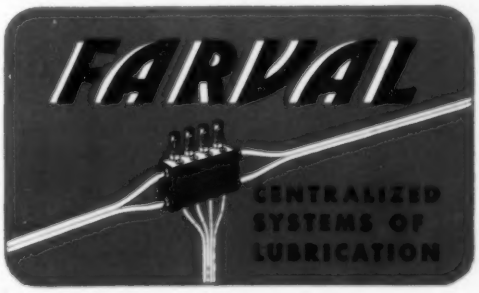

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